



AFRL-RH-WP-TR-2012-0109

**FRAMEWORK FOR ANALYTIC COGNITION (FAC): A GUIDE
FOR DOING ALL-SOURCE INTELLIGENCE ANALYSIS**

**Christina M. Kampman
Charles A. Mangio
Thomas L. Parry
Shim Enterprise, Inc.
7681 Tyler's Place Blvd. Suite 4
West Chester, OH 45069**

**Bonnie J. Wilkinson
Human-Analyst Augmentation Branch
Forecasting Division
Human Effectiveness Directorate
711th Human Performance Wing
Air Force Research Laboratory**

**DECEMBER 2011
Interim Report for January 2011 thru December 2011**

Distribution A. Approved for Public Release

**AIR FORCE RESEARCH LABORATORY
711TH HUMAN PERFORMANCE WING,
HUMAN EFFECTIVENESS DIRECTORATE,
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433
AIR FORCE MATERIEL COMMAND
UNITED STATES AIR FORCE**

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ROBERT EGGLESTON
Work Unit Manager
Human-Analyst Branch

//signature//

LOUISE A. CARTER, Ph.D
Chief, Forecasting Division
Human Effectiveness Directorate
711th Human Performance Wing
Air Force Research Laboratory

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REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE 31 Dec 2011		2. REPORT TYPE Interim		3. DATES COVERED (From Jan 2011 to Dec 2011) 31 Jan 2011 – 31 Dec 2011	
4. TITLE AND SUBTITLE Framework for Analytic Cognition (FAC): A Guide for Doing All-Source Intelligence Analysis				5a. CONTRACT NUMBER FA8650-09-C-6038	
				5b. GRANT NUMBER NA	
				5c. PROGRAM ELEMENT NUMBER 62202F	
6. AUTHOR(S) 1) Christina M. Kampman; Thomas L. Parry; Charles A. Mangio 2) Bonnie J. Wilkinson				5d. PROJECT NUMBER 7184	
				5e. TASK NUMBER X	
				5f. WORK UNIT NUMBER 7184X19W	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) 1) Shim Enterprise, Inc. 7681 Tyler's Place Blvd, Suite 4 West Chester, OH 45069				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) 2) Air Force Material Command Air Force Research Laboratory 711 th Human Performance Wing Forecasting Division Human-Analyst Augmentation Branch Wright-Patterson AFB OH 45433				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) AFRL-RH-WP-TR-2012-0109	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution A: Approved for public release; distribution unlimited.					
13. SUPPLEMENTARY NOTES 88ABW/PA cleared 15 Aug 12, 88ABW-2012-4458					
14. ABSTRACT The Framework for Analytic Cognition (FAC) is designed to provide an end-to-end guide for doing intelligence analysis that is systematic, yet flexible enough to accommodate the unstructured and highly iterative nature of the work. FAC focuses on aiding the analyst in developing a thorough, deep understanding of both capabilities and intentions as shaped by human decision and actions for their subject of study. FAC leverages existing knowledge relevant to intelligence analysis from potentially applicable scientific and professional subject areas. Systematic review of the literature continued during development and evaluation of the FAC. FAC incorporates new knowledge and work aids based on both the literature and the domain expertise of the investigators.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF: Unclas			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 221	19a. NAME OF RESPONSIBLE PERSON Mr. Bob Eggleston
c. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code)

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PREFACE

Our research program was engendered by puzzlement over why the recommendations of so many studies on reforming the intelligence community have resulted in so few changes. We are certainly not the first to notice this state of affairs. One observer examined all of the studies of U.S. intelligence between 1991 and 2001 and found that 80% of the recommendations made in those studies were not implemented. More recently the question has been raised that if there has been so much attention for so long on fixing intelligence, why does it never seem to get fixed? The most frequent explanations for the lack of progress towards reform of the intelligence community include bureaucratic resistance, organizational aversion to change, and resistance to changes that address new challenges.

Our research program posed a different question about the reason for the lack of implementation of the recommendations. Our question is “Does the existing knowledge and understanding of intelligence analysis, as manifested in the literature of intelligence analysis, inform the development and application of both the mechanistic and cognitive activities needed to support doing intelligence analysis?” Our answer, after an intensive, five-year analysis of the intelligence analysis literature and related scientific literature, is no.

We identified the following shortcomings in the intelligence analysis literature:

- The description of the analysis process, and the means for improving it, are largely cast in terms of what an analyst *should* do. However, very little guidance can be found in the literature that tells analysts *how* to do what they should do, particularly with regards to the cognition involved with analysis.
- The literature contains a heavy focus on the end phase of the analysis process, that is, the phase associated with coming up with the “answer” to an intelligence question. As a result, important work that must be done in the preceding intelligence analysis phases such as defining the problem, acquiring information, determining the meaning of information, and the transformation of information into evidence receives much less attention.
- While Heuer made notable contributions 30 years ago by integrating the results of cognitive psychology into the intelligence analysis process, little use has been made of any subsequent research findings in the field that might also help understand the analysis process. Most notable is the lack of use of the findings on System 1 and System 2 modes of thinking.
- Analysts are told to avoid bias. Sometimes the bias to be avoided is cognitive bias, that is, a departure from rationality. In other instances the bias to be avoided is a judgment that is considered unreasoned and shows a lack of objectivity. Other than telling analysts to avoid bias, the literature is silent with regards to the means of doing so.

Based on our assessment of both the intelligence literature and areas of scientific research related to analytical cognition we concluded that the need existed for the development of a body of thought that covers all of the essential elements of intelligence analysis from end to end, that provided a comprehensive and flexible framework supporting intelligence analysts doing their work. The Framework for Analytic Cognition (FAC) is our response to this need.

The choice of the word *framework* is deliberate. FAC is neither a manual nor a handbook but a description of a basic conceptual structure. FAC is designed to provide an end-to-end guide for doing intelligence analysis that is systematic, yet flexible enough to accommodate the unstructured and highly iterative nature of the work. FAC focuses on aiding the analyst in developing a thorough, deep understanding of both capabilities and intentions as shaped by human decision and actions for their subject of study.

In addition, our intent is that FAC address the shortcomings in the intelligence literature that we identified above. FAC places particular emphasis on the issues of bias and objectivity.

Extensive research shows that Type 1 thinking, sometimes called System 1 thinking, is the preferred mode of thinking but is the source of nearly all cognitive biases. Type 2 thinking is a more deliberative mode of thinking in which one's beliefs and knowledge strongly affect the results of thinking. The results of this research show that Type 2 thinking has to override Type 1 thinking in order to have thinking largely devoid of cognitive biases. The use of Type 2 thinking, however, results in thinking that is integral to the individual. It will be subjective to some and objective to others. The underlying intellectual principle used in the construction of FAC is the requirement for Type 2 thinking to override Type 1 thinking. Such overrides require deliberate effort and recognition of the need by the individual to do so. The means used in FAC to foster such overrides is epistemic writing: writing that not only results from thought but writing that becomes an integral part of thought in conjunction with all cognitive actions. The written product also provides a record of the information, knowledge, and beliefs used to develop the results of the cognition so one individual can compare their subjectivity to the subjectivity of the writer.

This initial version of FAC was written with the practicing intelligence analyst as its audience. FAC is written as a guide for analysts to pick up and use. It does not prescribe a mechanistic approach to analysis or "the" way of doing analysis. FAC describes cognition and the inputs to each cognitive act starting with a need for an intelligence judgment to the act of communicating the response to that need. By design, FAC is careful not to constrain the cognitive and creative aspects of this very unstructured work. Consequently, the use of structured processes and aids such as checklists are avoided. We have endeavored to provide enough structure to guide the work, while maintaining the flexibility for the individual to apply FAC given his or her personal styles of work and thinking.

FAC has been read and put into use by a small number of analysts and their managers. To date the response has been a few suggested changes amid very positive comments on FAC's content and utility. We, the authors, also know of changes to be made. None of our changes, nor those proposed by analysts and their managers, alter the basic conceptual content of FAC. We believe the dialogue about analytic cognition must be broadened, so FAC is being made widely available. The intended audience for FAC includes:

- educators in university intelligence programs
- educators in intelligence organizations
- commentators and students of intelligence analysis in the policy community, academia, and private sector
- those informing development of computer assisted support for analysts
- those developing and applying the analytic competencies of analysts and their managers

FAC is a work in progress. In FAC, we say that once an analyst has formed an answer to an intelligence question, the analyst needs to start at the beginning again since the analyst is a different person, intellectually, than when the analysis was initiated. This guidance is equally applicable to the authors of FAC - so we are starting over again. Your comments on FAC are desired and needed to help us further improve FAC.

1.0 SUMMARY

FAC is a comprehensive guide for doing intelligence analysis. It is designed to provide an end-to-end guide for doing intelligence analysis that is systematic, yet flexible, to accommodate the unstructured and highly iterative nature of intelligence analysis work. FAC focuses on aiding intelligence analysts in developing a thorough, deep understanding of both capabilities and intentions as shaped by human decision and actions for their subject of study.

The essence of intelligence analysis is determining the originator's meaning from information, and FAC is designed to aid in determining that meaning. The FAC contains the following essential elements to aid analysts in determining meaning and doing intelligence analysis. These essential elements are represented in the sections of the FAC.

- Understanding self, beliefs
- Writing to think
- Exploring purpose, issue framing, understanding actual or prospective customer needs
- Planning analysis substance, collaboration, resources & timing
- Acquiring information, systematically and thoroughly
- Assigning meaning to information, individually and in the aggregate
- Preparing an analysis representation separate from the customer product
- Communicating the assessment and its significance to customers

FAC leverages existing knowledge relevant to intelligence analysis from potentially applicable scientific and professional subject areas. In addition, FAC is being reviewed and used by a small number of intelligence analysts. Their feedback to date has been positive. Based on our research and this feedback, we believe that the FAC is now usable by analysts. However, FAC development is a work in progress. Additional research synthesis is being done to further improve the FAC, and additional research studies are planned to evaluate the FAC.

2.0 INTRODUCTION

2.1 The Genesis

Starting with Pearl Harbor, the U.S. intelligence community has often faced criticism for failing to predict or warn of future events. Numerous examples of these failures have been cited. Two of the most recent and highly publicized examples include the failure to warn against the 9-11 attack and incorrectly estimating Iraq's weapons program. As a result, numerous groups and commissions have been established during the past 30 years to study "what went wrong." All of these efforts have resulted in proposals to "fix" the intelligence community and thereby improve the quality of its products. While the proposals have come from different groups, a certain commonality exists among the proposals.

As one might expect, one of the proposed solutions is an increase in resources. However, both critics and supporters of the intelligence community believe that the solution does not only lie in providing more resources. Instead, there is a reoccurring theme that the core reason for the failure of analysis is "faulty thinking" on the part of the analyst. From this perspective, the necessary quality of the intelligence product will only be achieved by improvements in both the quality and productivity of analysts. In this context, past and present solutions proposed have included selecting more qualified personnel, enhancing training, developing new methodologies for analysis, and organizing analytical efforts. In the last several decades, proposals for the improvement of intelligence analysis have also emphasized the need to develop automated tools to aid in the acquisition and processing of information, as well as tools that will enhance analysis.

The fact that the same solutions are proposed time and time again suggests a failure of implementation. This failure could stem from many causes, but a potential cause of particular concern is whether the requisite knowledge for the implementation of the enhancements exists. For example, do we know the cognitive and personality attributes (e.g., extrovert or introvert) of a "good analyst?" What does an analyst need to know in order to function effectively? What are the mechanistic as well as the cognitive processes associated with the acquisition and processing of data or information? What are the characteristics of the cognitive transformation of data or information into useable knowledge?

It is reasonable and logical to assume that answers to these questions exist within the intelligence community. Certainly, the subject of intelligence analysis has not been ignored. A large number of books, blogs, reports, white papers, and articles on intelligence analysis exist, and new publications are added to the literature each year. However, even though a great deal of intelligence literature exists, does the literature contain all the requisite knowledge to implement intelligence analysis enhancements and improvements? Is the reoccurrence of the same proposals for improvement due solely to a failure to put this existing knowledge into practice or is it due to a lack of information in the literature? Future efforts to improve the analytical process are unlikely to be successful until these questions can be answered.

Air Force Research Laboratory (AFRL) initiated research to gain knowledge and understanding of intelligence analysis as described in published literature and documents. This publication, *Framework for Analytic Cognition (FAC)*, is the result of that research effort to answer the first question: Does the existing intelligence analysis literature contain all the knowledge needed to

implement intelligence analysis improvements and enhancements? The approach used in this study included the following:

- Acquire published literature regarding all aspects of intelligence analysis and related areas of science, particularly cognitive psychology.
- Assess the accumulated knowledge about intelligence analysis in terms of its completeness, consistency, and compatibility with knowledge in related scientific areas.
- Analyze the acquired information in the context of intelligence analysis, the characteristics of intelligence analysis, and the attributes of the individuals performing intelligence analysis.
- Develop recommendations relative to the attributes and skills necessary for quality analysis and relative to the development of analytic methodologies and work support aids and tools.

Based on the review and assessment of over 3,000 documents, this research effort provided an answer to the question of whether the existing literature on intelligence analysis contains the requisite knowledge to inform the development and application of both the mechanistic and cognitive activities to support doing intelligence analysis. **The answer is no.** In marked contrast, the results of scientific research on cognition (and in many other scientific fields) do provide an enhanced understanding of the analysis process and the factors that affect analysis. Some of the intelligence literature shows an awareness of this applicable cognitive research, but the application of the results to intelligence analysis is flawed. Indeed, some of the conventional wisdom in the intelligence literature is contradictory to what is known and accepted in cognitive research, and we will elaborate on this throughout the FAC.

Not only is the intelligence literature lacking in the knowledge necessary to support the development of effective processes for analysis, in some instances the lack of knowledge has a negative effect. Some of the methods and procedures for conducting analysis described in the literature can contribute to invalid analytic assessments. As we will elaborate in the FAC, deficiencies include:

- Rare recognition that information retrieval is a necessary skill for intelligence analysts.
- Using a proposed answer or a set of proposed answers to the intelligence question or issue as the starting point for intelligence analysis.
- No recognition of the potential for conflicts arising from personal and organizational beliefs during the intelligence analysis.
- Not fully addressing the important role of ever changing context and knowledge in the analyst's determination of meaning of information.

2.2 FAC Purpose

One recommendation from this research effort was to develop a framework that covers all of the essential elements of doing intelligence analysis from end to end, providing a comprehensive and flexible framework based on scientific findings to support intelligence analysts doing their work. The FAC is the implementation of that recommendation and provides the requisite knowledge based on the existing science. The FAC focuses on supporting an analyst addressing intelligence

questions and issues in his or her area of responsibility, including those self-initiated and those posed by others.

Traditionally an intelligence analyst has been assigned a specific area of responsibility; for example: a scientific discipline, a technology, a weapon system, individuals of interest, or a geographic area. The analyst is then expected to gain comprehensive knowledge and understanding of foreign activities, developments, and intentions in his or her area of responsibility and to produce authoritative products based on this knowledge. However, while an analyst may have sole responsibility to generate assessments for his or her area of responsibility, he or she does not work in isolation since developments in areas that are the responsibility of other analysts will affect developments in his or her area of responsibility. Analysts may work with others who contribute to the assessment or the assessment may be developed in collaboration with others. Most assuredly, analysts will have others who review and impose changes to the content of their assessments. Thus, the ultimate quality of the intelligence assessment and the resultant product depends on the input of many individuals.

The situation described above illustrates a basic paradox of analysis. In one context, formulating an assessment is a collaborative endeavor, but ultimately an assessment must be put forth by an individual. The individual analyst is both a recipient of the assessments of others and a provider to others to aid in their formulation of assessments. While the role of collaboration is important, the purpose of the FAC is not to prescribe the collaborative approach to be used by all individuals involved in creating an intelligence assessment. However, the FAC does provide approaches that enhance collaboration, e.g., through planning for the needed collaboration and capturing the analyst's thinking in writing to share during collaboration. The FAC focuses on the actions and analysis of the analyst responsible for addressing intelligence questions in his or her area of responsibility, including self-initiated issues and issues posed by others. The FAC does not address areas such as coordination, review, and approval processes.

The objective of the FAC is to stimulate your thinking by providing information on the analytical methods and approaches that will maximize the quality of the resulting assessment. In addition, the FAC provides a foundation for collaboration during generation of the intelligence assessment or required answer, as well as during subsequent quality reviews of the product.

2.3 Definitions

What is *intelligence analysis*? Based on our literature review, there is no agreed upon definition or purpose. This lack of an agreed upon definition and purpose is hardly surprising given the lack of agreement on the term *intelligence*. The recent efforts of Warner,¹ Johnston,² and Wheaton and Beerbower³ to establish a definition of intelligence are part of an ongoing effort.

Many of the definitions of *intelligence* encompass specific aspects of *intelligence analysis*. *Intelligence analysis* has been described in terms of the sources and classifications of information, processes, purposes, individual and organizational efforts, and consumers. Common themes include the use of single or all sources of information, use of denied or secret

¹ Warner, M. "Wanted: A Definition of "Intelligence"," *Studies in Intelligence*, Vol. 46, No. 3, 2002, pp. 15-22

² Johnston, R. *Analytic Culture in the US Intelligence Community: An Ethnographic Study*, Center for the Study of Intelligence, Washington, D. C., 2005.

³ Wheaton, K.J. & Beerbower, M.T. "Towards a New Definition of Intelligence," *Stanford Law and Policy Review*, Vol. 17, No. 2, 2006, pp. 319-330.

information (although most find this too limiting), discerning pertinent information, making inferences and judgments, individually and collectively developing knowledge of current and potential threats to national security, and providing useable and actionable information for the military and government and non-government policymakers.

The definitional problem has been compounded by the growing use of the term *intelligence* to describe many fields such as business intelligence and criminal intelligence. In addition, more confusion is added since *analysis* is a function associated with numerous endeavors like economics, history, and political and social sciences.

The basic question is whether these other intelligence and analysis activities are different than those associated with “military” or “national” intelligence. From a cognitive standpoint the answer is no. The distinction among all of these *intelligence* endeavors is who does the analysis and who is the intended customer of the analysis products. For the purpose of the FAC, *intelligence* and *analysis* are what is done by the organizations under the purview of the Director of National Intelligence.

Most descriptions of the functions and purpose of *intelligence analysis* also contain elements that are consistent with the standard definitions of both analysis and synthesis (e.g., Webster’s New World Dictionary, Third College Edition):

- “*Analysis*: a separating or breaking up of any whole into its parts, esp. with an examination of these parts to find out their nature, proportion, function, interrelationship, etc.”
- “*Synthesis*: the putting together of parts or elements so as to form a whole”

However, these descriptions of the *intelligence analysis process* often contain elements that go beyond the above definitions, such as requirement definition, collection, and communicating the results. For the purpose of this handbook, the term *intelligence analysis process* encompasses all the activities from exploring the question or issue to be addressed through providing the intelligence assessment. The term *intelligence analysis* is used to describe the activities that are inherent in the dictionary definition of analysis and synthesis.

The question “What is intelligence analysis?” is further confused by the many different ways that intelligence analysis is categorized. Some categorize according to the types of intelligence questions addressed by intelligence analysis. These questions are often referred to according to the following commonly used categories:

- Strategic
- Tactical
- Current
- Indications and Warning

Analysis is also often categorized as either *single source* or *all source*.

Another category of intelligence analysis exists, but is often not discussed in the literature. This category concerns the physical nature of the target of interest. For example, some aspects of such analysis involve determining the characteristics of a signal or the technical performance of a system and subsystems, determining radar cross sections or infrared signatures, measuring object sizes, or tracking numbers of things. The common attributes of such analysis are that it is

dependent on technical or engineering knowledge and judgments about physical placement or parameters, without consideration of the role of the human in the development or activity.

In contrast with the above, another category is focused on the understanding of human decisions and actions. It attempts to answer questions such as “What has been done?”, “Why has it been done”, “What was the intent of the actions?”, “What are the ramifications of the actions?”, “How does it affect their capabilities?”, and “What do those capabilities indicate about their intentions?”

The FAC focuses on understanding both capabilities and intentions as shaped by human decisions and actions. Across all of these categories, a common characteristic exists in all of these types of analysis. That is, *intelligence analysis* attempts to discover what a foreign nation or adversary doesn’t want to be known. In other words, the core objective of intelligence analysis is to discern what is unknown to us: hidden or classified plans, capabilities, and intentions of a foreign nation or adversary, i.e., their secrets.

2.4 FAC Contents

While disagreement might exist on the definition and purpose of intelligence analysis, the belief that intelligence analysis is cognitively highly complex and demanding is universally acknowledged. The typical intelligence analyst is confronted with a substantial amount of information. The fact that some information is missing and some is deliberately misleading only complicates the job of the analyst. From the available information, true or not, the analyst must determine meaning from information in order to develop knowledge and understanding so that intelligence questions can be answered.

Determining meaning and developing knowledge and understanding are not accomplished through a single cognitive process. Intelligence analysis, from start to finish, relies on many, interdependent cognitive processes. These cognitive processes include multiple inputs and decisions throughout the intelligence analysis. The results of these processes are highly dependent on the analyst involved. For this reason, an analyst should know what he or she adds to the determination of meaning throughout the analysis. To help analysts understand this, the next section of the FAC discusses analysts as individuals and their impact on cognitive processes. This “Analysts as Individuals” section of the FAC includes the following topics:

- **Thinking About Thinking.** The assignment of meaning to information is dependent on the individual’s past experiences, education, cultural values, knowledge, beliefs, etc. The section discusses how the mind functions, types of cognitive propensities, and role of knowledge, beliefs and goals. All of these factors influence your assignment of meaning to information and shape your behaviors and judgments.
- **Knowing Yourself.** The concept of humans as rational decision makers has been thoroughly discounted in the last decade. Recent research in neuroscience and cognitive psychology has shown consistent behavior that one author has termed “predictably irrational.”⁴ In other words, this behavior is predictable except by the individual so behaving. These human behaviors affect many aspects of the interaction between individuals and information, as well as the interactions with other individuals. An analyst should have awareness of such behaviors so that he or she

⁴ Ariely, D. *Predictably Irrational: The Hidden Forces that Shape our Decisions*, Harper, New York, NY, 2008.

can adopt practices to mitigate some of these behaviors. Since many human behaviors can affect the analysis process and the resultant product, an awareness of these behaviors and one's susceptibility to such behaviors is appropriate.

- **Writing As Thinking.** This topic discusses why writing is an essential underlying element of the overall analysis process. Because writing helps stimulate your thinking and cognition, we discuss why it is important to document or keep an external representation of your thinking, as it occurs throughout each element of the FAC. This external representation can be used to capture your thinking about a topic, manipulate those thoughts to create new thoughts, engage in self-reflection about your thinking, and share your thinking with others.

The rest of the FAC describes each essential element of the intelligence analysis process, including inputs and decisions, and their sequential and iterative relationships. The essential elements of the process described are:

- **Developing Intelligence Issue Statements.** The meaning of information is very dependent on **why** one is making the judgment. This section covers approaches for thoroughly exploring and understanding the intelligence question or issue being addressed. If the question is not self-initiated and comes from someone else (e.g., a customer), the approaches described provide the means to ensure that the customer and the analyst have the same understanding of the need and purpose for the intelligence analysis.
- **Setting a Direction: The Analysis Plan.** This section describes approaches for planning the overall analysis effort required to address the intelligence issue. By exploring how potential events associated with the target of your intelligence issue may unfold, you can identify more specifically the substantive areas that you will need to address. It will help you think about who may be involved in your target's decisions and why their actions may be taking place. This exploration helps you initially scope the substantive areas to be addressed, including the areas where you may need analytic contributions from others. The section also covers planning activities, time, resources, and support required to accomplish the analysis in the time available.
- **Developing the Information Plan.** In this FAC section, you translate your understanding of the intelligence issue, as well as the events, participants, and decisions described by the substantive areas identified in the analysis plan, into a strategy for seeking information about those topics. This aids you in determining possible sources of information, the information repositories to be searched, who will conduct the necessary searches, and an overall information acquisition schedule that summarizes your information acquisition strategy.
- **Information Acquisition.** This section describes how to develop search strategies based your Information Plan into appropriate queries for the repositories to be used. The section also addresses executing and keeping track of your searches, reviewing the results of searches, judging the relevance of the information, managing the relevant information acquired, formulating new search queries, and the iterative nature of information acquisition.

- **Analysis Techniques.** Determining the meaning of information is essential to analysis. We provide information in this FAC section to assist you with developing and focusing your mental framework in preparation for this crucial aspect. We elaborate upon many of the concepts introduced in the “Analysts As Individuals, Thinking About Thinking” section. Information is also provided on the role of structured analytic techniques (SATs) in both the intelligence literature and how they relate to the cognition of analysis.
- **Assignment of Meaning.** All information relevant to the intelligence issue under study is evidence of something. The challenge is to determine “evidence of what?” Finding out what others do not want you to discover is central to seeking information and developing and using the analytic approaches discussed in this section. The first step in finding the unknown is to assign meaning to each of the individual pieces of relevant information that resulted from your information acquisition efforts. Focused approaches for acquiring context and answer questions about *what* and *why* are provided. In addition, key concepts that are the foundation for the analysis approaches embedded in FAC are discussed.
- **Assessment.** At this stage you have finished assigning meaning to all the information that you judged as being relevant to the intelligence issue under analysis. You have developed tentative hypotheses, searched for more information, and developed more tentative hypotheses. The objective covered in this section is now to transform your tentative hypotheses into beliefs about the intelligence issue. The section discusses marshalling your information and beliefs for your assessment, and using your knowledge of the current status to predict what will result in the future.
- **Analysis Representation.** For reasons elaborated in the “Analysts as Individuals, Writing as Thinking” section, analysts must represent in writing the cognitive aspects of their analysis for each element of the FAC throughout the analysis process. This section discusses bringing all of these representations together into an integrated form. The Analysis Representation represents the totality of your analytic efforts.
- **The Customer Product.** This section covers communicating your assessment to a customer or audience in a written product. It discusses analyzing your audience, using the analysis representation to develop an effective narrative, and conveying your supporting judgments, evidence, and uncertainties to others.

2.5 Background

Before we discuss the specifics of the FAC, we’d like to review some of the conclusions we’ve reached based on our research. These results provide the foundation for the approaches we recommend in the FAC.

2.5.1. Analysis Processes

What is the process used to accomplish analysis? Perhaps the first explicit statement on an intelligence analysis process was provided by Sherman Kent.⁵ Kent's process included the following steps:

1. The appearance of a problem requiring the attention of a strategic intelligence staff.
2. Analysis of this problem to discover which facets of it are of actual importance to the U.S. and which of several lines of approach are most likely to be useful to its governmental customers.
3. Collection of data bearing upon the problem as formulated in stage 2. This involves a survey of data already at hand and available in the libraries of documentary materials, and an endeavor to procure new data to fill in gaps.
4. Critical evaluation of the data thus assembled.
5. Study of the evaluated data with the intent of finding some inherent meaning. The moment of the discovery of such a meaning can be called the moment of hypotheses. In reality there **is rarely such a thing as one moment of hypothesis** though some students of method, largely as a convenience, speak as if there were. **Nor can it be said categorically at what stage in the process hypotheses appear.** One would be pleased to think that they appeared at this, the respectable stage 5, but in actual practice they begin appearing when the first datum is collected. They have been known to appear even before that, and they may continue to appear until the project is closed out—or even after that. [emphasis added]
6. More collecting of data along the lines indicated by the more promising hypotheses, to confirm or deny them.
7. Establishment of one or more hypotheses as truer than others and statement of these hypotheses as the best present approximation of truth. This stage is often referred to as the presentation state [sic].

While we don't have data on what analysts actually use, in the literature Kent's description of the analytical process seems to have been universally accepted until 1980. At the time, Heuer put forward a different description of the intelligence analysis process.⁶ Heuer described the intelligence analysis process as:

- Definition of the analytical problem
- Preliminary hypotheses generation
- Selective data acquisition
- Refinement of the hypotheses
- Additional data collection
- Data interpretation and evaluation
- Hypotheses selection
- Continued monitoring

⁵ Kent, S. *Strategic Intelligence for American World Policy*, Princeton University Press, Princeton, NJ, 1949.

⁶ Heuer, R. "Strategies for Analytical Judgment," *Studies in Intelligence*, Vol. 25, No. 2, 1981, pp. 66-67.

While both Kent's and Heuer's descriptions have much in common, a fundamental difference exists in the cognitive process used to get from an understanding of the question being asked to the analytical answers for the questions asked. The Kent approach can be characterized as a *bottom up* or *evidence in search of a hypothesis or hypotheses*. In contrast the Heuer approach can be described as a *top down* or *hypotheses in search of evidence*.

The net effect is that in the Kent approach information is sought and meaning assigned based on the relevance to the questions being addressed after a thorough exploration of the issue or question. In contrast, in the Heuer approach information is sought and evaluated based on a set of proposed answers to the question being addressed. In both approaches, possible answers and often ultimately a single answer to the question must be proposed and selected as the answer to the question under study.

The core difference is the means and basis for generating the answer(s). In the one instance, the hypotheses come from analysis of all relevant information to the question. In the other instance, the hypotheses are generated based the inherent knowledge of the analysts and before the relevant information is acquired. This may not appear to be a difference that can affect the quality of the answer to the issue being addressed, **but it is**. The contextual framework in which meaning is assigned to information is different between the two approaches. More will be explained in subsequent portions of the FAC.

Both Heuer's and Kent's descriptions of the analysis process continue to be used by those who write on intelligence analysis. In most cases they write without the acknowledgement of the existence of the other, which is an importantly different process. We know of no effort to evaluate the two processes relative to one another or to identify the circumstances where one process is more suitable than the other; nor is there data to indicate the relative use of each of the processes by analysts. However, in the known training courses for analysts, preference is given to the process as described by Heuer.

To develop the content of the FAC and provide a coherent guide for your analysis efforts, a choice has to be made between the process as described by Kent and the one described by Heuer. Based on our evaluation of the literature on intelligence analysis and the findings in the scientific research, we have chosen to use the process as described by Kent as the underlying foundation. We will use this overall description, with significant elaboration, to build a holistic framework for doing intelligence analysis, which you can use to guide your efforts and stimulate your thinking as you strive to do high quality analysis that is useful for your customers.

As we'll describe throughout, there is a scientific basis for all of the elements described by each of the FAC sections and sound reasons for doing them all as explained. While these elements are approached in a specific order because of the natural flow of the work and for purposes of explanation, as you read them and do your analysis, you'll find that they are not independent linear steps, but **very interdependent pieces of a whole, consideration of which must shape each individual activity you undertake**. As we'll explain, you will also find that you'll cycle back through many of the elements repeatedly until you're satisfied with the sufficiency of what can be done for each, given a variety of constraints (e.g., information, time, etc).

2.5.2. Analysis Overview

As mentioned in the Introduction, an analyst has the responsibility to acquire knowledge and produce assessments of foreign activities, capabilities, intentions, and plans in his or her area of

assignment. The decision making process of an analyst's target of study (e.g., a foreign entity or country) will affect the target's activities, capabilities, intentions, and plans. This decision making process depends on consideration of many factors and conditions that are outside of an individual analyst's area of responsibility; it is very dependent on the target's activities, capabilities, intentions, and plans in areas that are the responsibilities of other analysts. Thus to achieve his or her objective of knowing or predicting the outcome of a target's act of decision making, each analyst requires and is dependent upon the knowledge and assessments of other analysts.

An excellent example of this interdependency is provided in Kent's discussion of the assessment of the strategic capabilities of Great Frusina.⁷ The incorporation of the knowledge, judgments, or assessments provided by others is solely the task of an individual analyst in the formulation of judgments within his or her area of responsibility. Other analysts and supervisors may comment and disagree with the judgments, but their involvement does not alter the fact that a specific individual originates the judgments related to a specific area, and that judgment is an inherent responsibility of the analyst assigned to that area. As a result of this division of responsibility, analysis is a group activity in the context of inputs from multiple participants while at the same time the results are the activity of a sole individual.

The fact that the very cognitive aspects of the analysis process are the responsibility of an individual has major ramifications on the outcome of the analysis process. Universal agreement exist that analysis is a highly cognitive process. The analyst is subjected to a large volume of information or data which he or she must process in order to acquire knowledge and make judgments.

How an individual processes information, incorporates prior information or knowledge, and draws conclusions from the information has been the subject of a substantial amount of research. Cognitive scientists have yet to agree, except in broad descriptions of the process, but agreement does exist that the outcome of the process is unique to an individual. As a consequence, the judgments resulting from the processing of information can differ from individual to individual, or might be the same but for very different reasons. This variability between individuals affects not only the outcome but also the very core of the analysis process: the selection of information that is relevant to the intelligence issues being addressed and the assignment of meaning to the selected information.

2.5.3. Information and the Individual

The intelligence and scientific literatures have numerous statements on the interdependency between information and the individual, as manifested in the following:

Far more than most of us realize, the answers we get in our thinking are influenced by subjective factors—factors residing in the subject who does the viewing rather than in the object viewed. Our value judgments determine which objects and activities we seek and which we avoid. Habits and knowledge acquired from past experience determine the methods by which we satisfy our needs. The needs, value judgments, and past experience of the individual form a complex point of view from which he sees all new experiences.⁸

⁷ Kent pp. 40-65.

⁸ Little, W.W. *Applied Logic*, Houghton Mifflin, Boston, MA, 1955, p. 261.

Yet, in practice the following seems to be the more prevalent view:

There is a widespread myth that information is something in the world that does not depend on the point of view of the observers and that it is (or is often) independent of the context in which it occurs.⁹

Woods et al. also pointed out the fallacy of this myth: This is simply not the case. There are no facts of fixed significance. The available data are raw materials. A particular datum gains significance or meaning only from its relationship to the context in which it occurs or could occur including the perspective of observers. As a result, informativeness is not a property of the data field alone, but is a relationship between observers and the data field.¹⁰

The basis for the often claimed, “facts don’t speak for themselves” is implicit in these statements. The context needed for significance and meaning requires an input from the analyst of the information. What is this input? This topic will be covered in more detail later in the FAC, but suffice it to say that the input includes the knowledge, beliefs, values, and ideas of the analyst of the information, as well as the purpose for reviewing the information. In other words the input is based on the total content on the mind of the analyst. Since the content of each person’s mind is different than all others, the fact that the interpretation of information is different from analyst to analyst is hardly surprising.

Another factor that must be considered in this relationship between the information and the individual is the fact that the content of mind is not static. The purpose for interpreting the information can change when new intelligence issues arise. Information that was worthless when first examined can be very valuable given a new issue to answer. Also, while some values and beliefs are slow to change, an individual is constantly adding new knowledge, particularly related to the accomplishment of a task such as answering an intelligence issue. Thus the interpretation of information being analyzed can change as the mind changes. What may have been insignificant yesterday may be very important today. The implication is a need to continuously reinterpret the information.

2.5.4. Acquisition of Relevant Information

The analyst must have a full and comprehensive understanding of the intelligence issue to be addressed before any other worthwhile activities can be accomplished. Once there is understanding of the intelligence issue, the acquisition of information that is relevant to the issue can begin.

What is relevant information? Merrill-Webster defines *relevant* as:

- having significant and demonstrable bearing on the matter at hand, or
- affording evidence tending to prove or disprove the matter at issue under discussion

⁹Woods, D.D., Patterson, E.S. & Roth, E.M. *Can we Ever Escape from Data Overload? A Cognitive Systems Diagnosis*, AFRL-HE-WP-TR-1999-0195, Ohio State University and Roth Cognitive Engineering, Columbus, OH, 1998, p. 14.

¹⁰ Woods p. 14.

However, as you'll see in subsequent sections, in the FAC *relevance* is defined in a very straightforward way: *The information that you find is relevant if it pertains to your intelligence issue.*

Relevance will be discussed much more in the FAC, but for now it is important to point out that the question of what is relevant information is often viewed as a minor problem. Often the view is that all information is what it is, with a single meaning, but research indicates this view is wrong. An extensive amount of research has been performed on subject matter experts judging the relevance of information for a specific information need. The result was little agreement on which information was relevant. These results were unexpected at the time (about 40 years ago), but based on the factors described in the prior section, the results are easily explained. Numerous investigations have been subsequently done and the results are the same; different people have substantial disagreement on what information is relevant to a specified need.¹¹ (Schamber 1994)

Relevance is determined by an interaction between the information and the user of that information. The existence of this dependency is an explanation for performance of information storage and retrieval (IS&R) systems. The logic used in these systems to identify relevant information is based on the words used to express the content of the information system. To date, none have been able to incorporate the content of the mind of the user, or the interaction between the user and the information, necessary for making judgments on the relevance of the information.

To overcome this inherent limitation of the capabilities of IS&R systems, the user must develop words and phrases that might be contained in the information being sought. The selection of which of the words and phrases to use requires an information seeking tradeoff. One can search using multiple words and phrases in an attempt to retrieve all the relevant information; but as a consequence, the IS&R system will provide a large amount of non-relevant information. Or, one can search with a very limited set of words and phrases in order to minimize the amount of non-relevant information provided, but by doing so will not retrieve much of the relevant information.

The preceding tradeoff poses a major operational dilemma for the analyst. The pursuit of all relevant information can consume a large amount of time with no foreknowledge that the results will be worth the effort. However, an inadequate and incomplete base of relevant information can preclude the assessment of a valid and complete answer to the intelligence issue or question.

2.5.5. Extracting Meaning from Information

After the acquisition of relevant information, attributing meaning to the information can begin. Many people have described the essence of the analysis process as assigning meaning to the information, but few have been explicit about what they mean by "meaning." A 2008 dictionary definition is:

- "significant quality: *especially*: implication of a hidden or special significance" (Merriam-Webster Online Dictionary)

¹¹ Schamber, L. "Relevance and Information Behavior," *Annual Review of Information Science and Technology*, Vol. 29, 1994, pp. 3-48

This definition is ideal for intelligence analysis since the objective of analysis is to reveal the hidden information and to determine that which someone doesn't want you to know. ***Unless analysis results in something that was not explicitly contained in the information under analysis, analysis has not been done; instead, the result is reporting.***

From an overall perspective, the meaning attributed to information falls in two categories: *what* has been accomplished and *why*. Most analysis, intelligence or other, deals with the former (*what*). But, the latter (*why*) is more likely to be an indicator of the future. Primary attention must be given to the substantive content of information to determine changes in one's state of knowledge and/or situational awareness. Familiarity with the substantive content is the requisite knowledge for making a determination of changes in the *what*. Subject matter experts have this knowledge so they can be effectively used to review intelligence information and answer the question of *what* has been accomplished. However while subject matter expertise is essential, the determination of *why* requires much more knowledge about attributes other than the current subject matter (i.e., prior aspects of substantive content, human motivations, relevance and value relative to the issue) than most subject matter experts outside the intelligence organizations possess, as will be explained in the next paragraph. If others outside of intelligence organizations do attribute the *why*, they will most likely be practicing "mirror imaging" based on their own experience, not the particulars of the substantive content, human motivations, and relevance and value to the issue at hand. In other words, they will assign to others our motivations for similar activities.

Attributing the *why* is much more complex than solely understanding the subject matter or substantive content and the *what*. Based on our research, we have determined that all of the following must be ascertained in the context of information that relates to the actions, behavior, and decisions of humans:

- Substantive content
- Motivation of the human actors
- Relevance of the information to the issue under study
- Value of information to the issue under study

Answers to the questions associated with each of these four attributes must be established for every item of information reviewed by the analysts. Some answers will be established easily, but others will require a considerable amount of research and added information. The following are examples of the questions and additional information needed to determine the answers for the four preceding attributes:

- **Substantive content.** Has the person/organization/country engaged in such substantive activities prior to the new information? If so, how does this activity differ from the past activities? How does the substantive content relate to the issue under analysis?
- **Motivation of human actors.** If individual(s)/organization(s)/countries are associated with the information, have they previously been associated with similar activities? If so, how does the new information differ from past activities by those individuals(s)/organization(s)/countries? If not, how does this new activity relate to past activities/responsibilities of those individual(s)/ organization(s)/countries?

- **Relevance of information.** If previously determined that the substantive content does not relate to issue under study, the information may not be relevant. However, if the individual(s)/organization(s)/countries associated with the information are of *interest to the issue under study*, the information is relevant regardless of substantive content.
- **Value of information.** If the answers to the above questions change the analyst's knowledge and understanding on any aspect, then the information is valuable. If the answers only confirm what was previously known, the information is of limited value. If no change occurs in the analyst's knowledge, the information has no value *to the issue under study*.

Based on the preceding discussion, the meaning of information can hardly ever occur based solely on the content of the information being assessed. The assignment of meaning requires extensive prior knowledge about substantive matters, individuals, organizations and nations *as well as the assignment of meaning to the prior information*. If the analyst does not have this knowledge, he or she cannot fully assign meaning to the current information.

2.6 Summary

We conclude this section of the FAC with the following observations:

- An analyst is responsible for the production of assessments of foreign capabilities, intentions, and plans in his or her area of assignment.
- The assignment of meaning, revealing hidden implications, or identification of significance to individual pieces or aggregates of information is the essence of intelligence analysis.
- Information does not have single meaning. Its meaning is dependent upon the individual making the assignment of meaning.
- The individual characteristics that affect the assignment of meaning include knowledge, beliefs, values, ideas, and the purpose for assigning the meaning.
- The meaning of information ideally requires knowledge of all prior information related to the current information.

3.0 ANALYSTS AS INDIVIDUALS

3.1 Introduction

In the “Introduction to the FAC” section, we tried to convey the message that you, as an individual doing intelligence analysis, have a singular role of paramount importance. The formulation of judgments about foreign activities and intentions related to your assigned area is your responsibility and only yours. These judgments are the foundation for all subsequent deliberation by peers and superiors as they form judgments about other areas of foreign activities that are related to your area of responsibility.

The formulation of these judgments is based on your assignment of meaning to the all relevant information available to you. As pointed out earlier, the assignment of relevancy and meaning is dependent on the content of the information, the intelligence issue being addressed, and the totality of the content of your mind. These are the inputs to your cognition. Your cognitive ability and its application determine how these inputs will be utilized to form judgments.

One important observation from the literature on cognition is that there is no threshold of cognitive ability or content of the mind for making decisions. The quality of the information inputs or the degree of cognitive ability does not limit the formation of judgments. People will make judgments on the meaning of information regardless of what they know or how they think. Thus if you wish to improve the quality of your judgments, as distinct from the act of making judgments, one must develop a realistic appraisal of your cognitive abilities and the content of your mind. To do this, however, means that one has to know the specifics of what has to be appraised. For those with this inclination, the intent of this section is to provide assistance. This section deals with the mechanics of thinking, inputs to cognition, and the outputs from various forms of cognition. We also provide a description of how writing can enhance cognition.

3.2 Thinking about Thinking

The importance of the individual in analysis is explicitly recognized in the extensive literature on intelligence analysis by acknowledging the analyst’s contribution to the intelligence product. At the same time when deficiencies occur, as represented by intelligence failure, these deficiencies are often attributed to faulty thinking on the part of the analyst. The importance of how one thinks was emphasized by Davis:¹²

Effective management of the impact of cognitive biases and other psychological challenges to the analytic process is at least as important in ensuring the soundness of assessments on complex issues as the degree of substantive expertise invested in the effort.

As might be expected then, most of the recommendations for improvement relate to the analyst doing better thinking. Almost universally, the recommendations are for analysts to be rational and unbiased. These recommendations are usually silent on how this is to be accomplished except for admonishments to use critical thinking, which is frequently not defined or defined in numerous ways. In effect, these recommendations imply that desired end state of analysis is easy to achieve. **It isn’t**, as manifested by the centuries old debate among psychologists and philosophers on the topics of rationality and bias.

¹² Davis, J. "Why Bad Things Happen to Good Analysts," in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, eds. R.Z. George & J.B. Bruce, 2008, p. 157.

Nevertheless, recent developments in this debate do provide an understanding of the factors that lead to irrationality and bias. To provide you insight into these developments and their applicability to your evolution as an analyst, we will cover information on the functional partitions of the mind, the role of each partition, the relationships and dependencies of each partition, the inputs to the functioning of each partition, and thinking styles. Using what is now known about the mind, albeit with considerable effort, can result in analysis that has the desired characteristics of rationality. The intent of this FAC section is to provide basic knowledge to facilitate you achieving the holy grail of analysis: being rational and unbiased.

So you are challenged to be unbiased. What does this mean? The answer may not be as obvious as you think. The Merriam–Webster online dictionary defines bias as “an inclination of temperament or outlook; *especially*: a personal and sometimes unreasoned judgment”. Wikipedia says “the term biased is used to describe an action, judgment, or other outcome influenced by a prejudged perspective. It is also used to refer to a person or body of people whose actions or judgments exhibit bias.” We think you would agree that this is the meaning most often assigned in common usage when bias is discussed relative to gender, culture, race, nationality, and religion. However, this is not the meaning of the word biased as used in the intelligence literature nor is it what is meant when they call for analysis to be unbiased, although they certainly don’t want the analytical results based on stereotypes. Rather, the intelligence literature is talking about cognitive biases. In the psychological literature, cognitive bias is thinking that deviates from normative assumptions. What are normative assumptions?

Basically, an assumption about “how things *should* be” is a normative assumption, because it presupposes the existence of a “normal example” that all things should follow.¹³

Heuer¹⁴ provides another view on cognitive biases.

A substantial body of research in cognitive psychology and decision-making is based on the premise that these cognitive limitations cause people to employ various simplifying strategies and rules of thumb to ease the burden of mentally processing information to make judgments and decisions.....Cognitive biases are mental errors caused by our simplified information processing strategies.

Please make a mental note of the first sentence with the implications that cognitive biases are caused by defects in the mind. We’ll return to this topic later.

In both usages, the word bias is describing irrational behavior. However, the source for this irrationality is different for cognitive biases and stereotypical biases. In neither case is the irrationality due to some inherent cognitive limitation as stated by Heuer. By understanding the source of each form of irrationality, corrective action can be taken so rational thought is more likely to occur, as we’ll explain later.

The inference from the preceding is that irrational thinking will be eliminated if only we can control our cognitive biases. This is an incorrect inference since irrationality originates from numerous sources. The situation becomes even more complicated by the fact that, except in the use of logic, what is rational is subject to interpretation since the standards for judging rationality

¹³ *Some definitions of terms*, 19 October 1997, <http://www.bcholmes.org/definitions.html>.

¹⁴ Heuer, R.J.J. *Psychology of Intelligence Analysis*, Center for the Study of Intelligence, Washington, D. C., 1999, p. 93.

are often established by the individual. An example of this is the above definition of normative assumptions. Rational thinking is what most people judge to be rational. In effect, rational thinking is what best conforms to evidence and accepted beliefs. This state of affairs puts the burden of proving that your analysis is rational thinking on you. Your challenge is to appropriately use evidence and to know and defend your beliefs. Incidentally, rational thinking does not necessarily equate with truth as demonstrated by Sherman Kent's estimate on the Soviets placing missiles in Cuba. In this case, there was a careful evaluation of the available evidence and open-minded, thoughtful consideration of intentions from the perspective of the Soviets. However, "truth" didn't follow a rational path in this situation where the estimate was made before the enemy made their decision. As Kent indicated in his post-analysis, they did not "divine exactly when the enemy is about to make a dramatically wrong decision."¹⁵

3.2.1. Background

Since at least the days of the Greek philosophers, the state of mind has been a topic of great discussion. Plato felt that the mind was divided into two separate components of reason and emotion that work at odds with one another. While Plato's concept of a divided mind did not totally disappear from consideration, the dominant theme that has evolved since the Middle Ages was based on the work of Descartes, who agreed in principal with Plato but gave more emphasis on the ability to reason. His faith in rationality was accepted and became the foundation for thinking about the human character for the next 400 years. The concept that man is rational and would make decisions that served his best interests became the bedrock for describing human behavior, particularly in such fields as economics. However, research was increasingly showing that man frequently did not exhibit rational behavior, but the research is not without controversy.

Thirty years of decision research has used rational theories from economics, statistics, and logic to argue that descriptive behavior falls systematically short of normative ideals. But this apparent gap between the normative and the descriptive has provoked many debates: Is there in fact a gap?..Many economists and philosophers have argued on principle that there is no gap: people are essentially rational, any errors are random and non-systematic, and apparent systematic discrepancies are attributable to improper empirical methods.¹⁶

The so-called biases are mostly found in laboratory studies using artificial puzzle tasks and college freshmen as subjects, conditions that minimize expertise and context. In natural settings, biases can disappear or be greatly reduced.¹⁷

The counter arguments are:

They (Kahneman and Tversky) chipped away at it by carefully documenting how people violated one bedrock normative assumption after another.¹⁸

The existence of systematic biases is now largely accepted by decision researchers, and, increasingly, by researchers in other disciplines.¹⁹

¹⁵ Kent, S. & Steury, D.P. *Sherman Kent and the Board of National Estimates: Collected Essays*, Center for the Study of Intelligence, Washington, D.C., 1994

¹⁶ Larrick, R.P. "Debiasing," in *Blackwell Handbook of Judgment and Decision Making*, eds. D.J. Koehler & N. Harvey, Blackwell, Malden, MA, 2004, p. 316.

¹⁷ Klein, G., Moon, B. & Hoffman, R.R. "Making Sense of Sensemaking 1: Alternative Perspectives," *IEEE Intelligent Systems*, Vol. 21, No. 4, 2006, p. 72.

¹⁸ Tetlock, P.E. & Mellers, B.A. "The Great Rationality Debate," *Psychological Science*, Vol. 13, No. 1, 2002, p. 94.

A substantial research literature – one comprising literally hundreds of empirical studies conducted over nearly three decades – has firmly established that people’s responses often deviate from the performance considered normative on many reasoning tasks.²⁰

This debate is not likely to end soon since the probable cause of the disagreement is not the interpretation of the experimental data, but rather the nature of the experiments (e.g., the circumstances and context, the methods and type of data collected, etc). Disagreement does not exist over the fact that people will exhibit cognitive biases in many different circumstances. For our purposes, this disagreement is not significant other than you should be aware of it. As mentioned above, in the appropriate setting the biases can be eliminated or largely reduced. Our intent is to provide the requisite information so one can eliminate or largely reduce their biases. We will return to what is required to achieve this mitigating effect on cognitive biases later.

During the last 50 years, marked changes in thinking have occurred about how humans think. Darwinism and the idea that the mind is a product of evolution have had an increasing influence on the consideration of the brain and the mind. Increasingly, Plato’s view of a competition between rationality and emotion has become the foundation for concepts about the functioning of the mind. Among other concepts, this has led to the two mind concept that is continuing to evolve as an explanation for human cognitive behavior.

Various theories of the two mind concept have been put forth. It is beyond the scope of this effort to judge which of these theories is most valid. However, the work of Keith E. Stanovich²¹ is the most useful for our purpose; that is, using the evolving knowledge about how one thinks to guide what to do to achieve rational and unbiased analysis. Stanovich’s description of how the mind works follows, as well as some descriptions by others.

3.2.2. How the Mind Functions

Stanovich says that general agreement exists that two different types of cognitive process occur in the brain: Type 1 and Type 2. These processes are further defined as:

The defining feature of Type 1 processing is its autonomy. Type 1 processes are termed autonomous because: 1) their execution is rapid, 2) their execution is mandatory when the triggering stimuli are encountered, 3) they do not put a heavy load on central processing capacity (that is, they do not require conscious attention), 4) they are not dependent on input from high-level control systems, and 5) they can operate in parallel without interfering with each other or with Type 2 processing. Type 1 processing would include behavioral regulation by the emotions; the encapsulated modules for solving specific adaptive problems that have been posited by evolutionary psychologists; processes of implicit learning; and the automatic firing of overlearned associations. Type 1 processing, because of its computational ease, is a common processing default. Type 1 processes are sometimes termed the adaptive unconscious in order to emphasize that Type 1 processes accomplish a host of useful things - face recognition, proprioception, language ambiguity resolution, depth perception, etc. - all of which are beyond our

¹⁹ Larrick p. 316.

²⁰ Stanovich, K.E. & West, R.F. "Individual Differences in Reasoning: Implications for the Rationality Debate? (Includes Advancing the Rationality Debate)," *Behavioral and Brain Sciences*, Vol. 23, No. 5, 2000, p. 645.

²¹ Stanovich, K.E. *What Intelligence Tests Miss: The Psychology of Rational Thought*, Yale University Press, New Haven, CT, 2009.

awareness. Heuristic processing is a term often used for Type 1 processing - processing that is fast, automatic, and computationally inexpensive, and that does not engage in extensive analysis of all the possibilities.

Type 2 processing contrasts with Type 1 processing on each of the critical properties that define the latter. Type 2 processing is relatively slow and computationally expensive - it is the focus of our awareness. Many Type 1 processes can operate at once in parallel, but only one Type 2 thought or a very few can be executing at once - Type 2 processing is thus serial processing. Type 2 processing is often language based and rule based. It is what psychologists call controlled processing, and it is the type of processing going on when we talk of things like "conscious problem solving."²²

He further describes the relationship between the two processes as:

One of the most critical functions of Type 2 processing is to override Type 1 processing. This is sometimes necessary because Type 1 processing is "quick and dirty." This so-called heuristic processing is designed to get you into the right ballpark when solving a problem or making a decision, but it is not designed for the type of fine-grained analysis called for in situations of unusual importance (financial decisions, fairness judgments, employment decisions, legal judgments, etc.).²³

In effect, the identification of Type 1 and Type 2 processes leads us to back the observations made many centuries ago by Plato. While Plato was satisfied with the explanation of the mind divided into two parts, Stanovich postulates the existence of *three minds: autonomous, algorithmic, and reflective*. Type 1 processes are accomplished in an *autonomous mind*. Type 2 processes that are performed in both the *algorithmic mind* and the *reflective mind*. The algorithmic mind, as you might suspect from its name, is associated with information processing mechanisms with many of the attributes attributed to computers, including the lack of emotions. In contrast, the reflective mind is "concerned with the goals of the system, beliefs relevant to those goals, and the choice of action that is optimal given the system's goals and beliefs."²⁴

Stanovich provides considerable detail on the relationship between the three minds, outputs and inputs between the minds, and the nature of the mind's response dependent on these factors. The detail he provides is beyond what is needed to gain perspective on the mind's working as it affects intelligence analysis. For our purpose, Stanovich establishes the following attributes of the mind:

- Humans by nature are cognitive misers. We are inclined to lessen our cognitive load and the need for information. This is Type 1 processing which is the default mode. Unless intervention occurs from other parts of the mind, Type 1 processes will dominate the mind's response.
- An important feature of the algorithmic mind is to override the processing being done by the autonomous mind before the results of Type 1 processes constitute the output of the mind.
- There are few differences between the autonomous minds of individuals. Differences in the algorithmic minds of individuals "reflects reasoning abilities

²² Stanovich p. 22.

²³ Stanovich p. 22.

²⁴ Stanovich p. 39.

operating across of a variety of domains”²⁵ Individual differences in the reflective mind depend on *thinking dispositions* and the inputs to the functioning of the reflective mind; these inputs are called the *mindware*.

- The inputs to each of the functional partitions of the mind are:
 - Autonomous mind – information or knowledge acquired from evolution and procedures which have been acquired through practice.
 - Algorithmic mind - strategies and processes for processing of information, e.g., procedural knowledge.
 - Reflective mind – beliefs, declarative knowledge, and goals.

We’ll now focus the rest of the discussion on the nature of the reflective mind, discussing thinking dispositions and mindware.

3.2.3. Thinking Dispositions

What are thinking dispositions? This is a term widely used in cognitive psychology to cover a wide range of cognitive behavior. Examples of thinking dispositions and their associated cognitive propensities are “actively open minded thinking, the need for cognition (the tendency to think a lot), consideration of future consequences, need for closure, superstitious thinking, and dogmatism.....the tendency to collect information before making up one’s mind, the tendency to seek various points of view before coming to a conclusion, the disposition to think extensively about a problem before responding, tendency to calibrate the degree of strength of one's opinion to the degree of evidence available, the tendency to think about future consequences before taking action, the tendency to explicitly weigh pluses and minuses of situations before making a decision, and the tendency to seek nuance and avoid absolutism.”²⁶ (Stanovich 2009:21-22).

Another set of thinking dispositions associated with critical thinking are:

- Persisting – Stick to it.
- Thinking and communicating with clarity and precision – Be clear.
- Managing impulsivity – Take your time.
- Gathering data through all senses – Use your natural pathways.
- Listening with understanding and empathy – Understand others.
- Creating, imagining, innovating – Try a different way.
- Thinking flexibly – Look at it another way.
- Responding with wonderment and awe – Have fun figuring it out.
- Thinking about your thinking (metacognition) – Know your knowing.
- Taking responsible risks – Venture out.
- Striving for accuracy and precision – Check it again.
- Finding humor – Laugh a little.
- Questioning and problem posing – How do you know.
- Thinking interdependently – Work together.

²⁵ Stanovich p. 13.

²⁶ Stanovich pp. 21-22.

- Applying past knowledge to new situations – Use what you learn.
- Remaining open to continuous learning – Learn from experiences²⁷

The preceding thinking dispositions are the manifestation of a very active mind. A very active mind accepts new information, subjects that new information to scrutiny, determines the new information's consistency with previously acquired information, and evaluates the consistency of the conclusions drawn from previous information with those drawn from the new information.

3.2.4. Mindware

As we previously stated, the three inputs to the reflective mind are: beliefs, declarative knowledge, and goals. Stanovich labels this collection of inputs to the reflective mind as mindware, based on a concept developed by Perkins.²⁸ By doing so, he has provided a definition of the content of the mind. This definition pertains to the inputs to the mind's cognition. It does not, however, relate to other attributes of an individual that govern the intensity, frequency, and continuity of applying cognition.

Within the intelligence literature, the role of the content of the mind in intelligence analysis has been a frequent topic. The literature recognizes the relationship between analyst judgments and what is called mindset. Similarly, the cognitive psychology literature recognizes terms like mental model and framing, and those terms have been used to convey the concept of the content of the mind. What has been lacking, however, has been an explicit identification of the inputs to the mind that constitute the content of the mind. Thus, Stanovich's definition represents a significant finding: by identifying the inputs, you can focus efforts to improve the content of the mind. Towards this end, we elaborate on each of the inputs to the reflective mind - beliefs, declarative knowledge, and goals - in the following.

3.2.5. Beliefs

One very important consequence of thinking dispositions is the establishment of beliefs. The Merriam-Webster online dictionary defines belief as "conviction of the truth of some statement or the reality of some being or phenomenon especially when based on examination of evidence." The implication of this definition is that beliefs are the product of reasoning and thought. However, increasingly the view is held that two types of beliefs exist. Abelson put forth this view:

But it is important to distinguish between *testable belief*, belief about objects within the immediate experience of the person that allow appropriate action and feedback, and *distal belief*, belief about objects only remotely experienced or not sensibly verifiable.²⁹

In the more recent literature, beliefs that are not founded on an examination of evidence are called memes. Memes are given many of the attributes of genes, i.e., their basic objective is to replicate and survive. As a result, these types of beliefs are passed from one individual to another without proof and without conscious awareness. Some have termed memes as the virus

²⁷ Costa, A.L. & Kallick, B. *Describing 16 Habits of Mind*, The Institute for Habits of Mind [undated].

²⁸ Perkins, D.N. *Outsmarting IQ: The Emerging Science of Learnable Intelligence*, Free Press, New York, NY, 1995.

²⁹ Abelson, R.P. "Beliefs are Like Possessions," *Journal for the Theory of Social Behaviour*, Vol. 16, No. 3, 1986, p. 229.

of the mind.³⁰ Stanovich devotes an entire chapter to memes and identifies them as contaminated mindware since they can cause thinking that is not rational.³¹

Memes (and beliefs referred to by the common use of the term bias, discussed earlier) result in irrationality. Cognitive biases also result in irrationality. However, the basis for cognitive bias is different than the basis for these irrational beliefs. Consequently, the actions you take to mitigate the negative effects of each are somewhat different. As discussed earlier, humans are by nature cognitive misers and inclined to lessen our cognitive load and need for information.

Consequently, cognitive biases will naturally evidence themselves if one does not stop and think. Rather than immediately and automatically responding to a consideration or question, however, you can learn to recognize and override these tendencies resulting from Type 1 processing in the autonomous mind.

Dealing with irrational beliefs can be much more difficult than dealing with cognitive biases. The role of beliefs in intelligence analysis is substantial. We all have beliefs that can affect our analysis. You must employ appropriate thinking dispositions and actively engage the reflective mind to deal with irrational beliefs. First, you must try to develop a keen awareness of the beliefs you have. However, awareness of your beliefs is not sufficient. You must consider the potential effects of those beliefs on your analysis. Then you should make your beliefs and the possible effects of those beliefs explicitly visible to yourself and others. This will enable you and others to better understand your thinking and your output. The dialogue generated with others will help you challenge your own thinking.

In the intelligence literature, the word “assumptions” is used instead of beliefs. This difference in terminology has major ramifications since the cognitive and remedial activity associated with each term is different. For example, “assumptions” can be propositions that are considered as true for the purpose of guiding investigation. If this is the case, then such assumptions can be listed and changed relatively easily as more information is acquired and explicit cognition is applied. However, if the “assumption” is based on an analyst’s underlying beliefs (e.g., memes, common biases), the remedial action (as described above) is much more difficult because the belief is held without being subject to explicit cognition. Because “assumptions” (using the common language in the intelligence literature) can include beliefs and are much more than propositions that will guide investigation and subsequently be changed, deliberate efforts are needed to subject your beliefs to scrutiny. Even so, listing all of the beliefs used in the analysis of information *after the fact* is extremely difficult. This difficulty of knowing what beliefs are used in the analysis can be mitigated by identifying the beliefs used in assigning meaning to information *at the time the meaning is assigned*.

3.2.6. Knowledge

The second input to the reflective mind is declarative knowledge. Pirolli defined declarative knowledge as follows:

Declarative knowledge is the kind of knowledge that a person can attend to, reflect upon, and usually articulate in some way (e.g., by declaring it verbally or by gesture).

³⁰ Brodie, R. *Virus of the Mind: The New Science of the Meme*, Integral Press, Seattle, WA, 1996.

³¹ Stanovich pp. 152-171.

Declarative knowledge includes the kinds of factual knowledge that users can verbalize, such as "The 'open' item on the 'file' menu will open a file."³²

In other words, declarative knowledge is what we know; the more we know, the greater the potential for better thinking.

Procedural knowledge is not part of mindware, but is an important component of the mind. It is defined as follows:

Procedural knowledge is defined as the strategies and sequences of operations used in problem-solving (know-how).³³

Sternberg says that procedural knowledge is tacit knowledge and "takes the form of rules of thumb for what to do under what circumstances."³⁴ This function supports the algorithmic mind. As such, procedural knowledge is an important contribution to cognition. With effort, one can improve their procedural knowledge. But, we will not deal with this since the focus of our discussion is the functioning of the reflective mind.

The general role of knowledge is well recognized in the intelligence literature. This is manifested by recommendations for intensive training and education of analysts. However, much less emphasis is placed on developing the deep knowledge associated with expertise. This is also evidenced in practice by the diminished emphasis on long-term analysis.

3.2.7. Goals

The last input to the mindware is goals. As mentioned in the "Introduction to the FAC" section, the meaning of information is based on the purpose for which it is being analyzed. The purpose of looking at any information establishes the goal as it is represented in the mindware.

While the intelligence literature highlights the importance of knowing the requirement for intelligence analysis, *why* you are doing the analysis is infrequently covered in this literature. As a result, little emphasis has been placed on the importance of knowing why you are doing the analysis as a means of improving your understanding of the purpose of analysis. We will cover this extensively in the "Developing Intelligence Issue Statements" section of the FAC.

3.2.8. So What?

The preceding discussion provides a model of how the mind works and the information used by the mind to produce its responses. Though many cognitive psychologists would likely find this model an over-simplification, Stanovich's views are accurately reflected, albeit in summary form. Moreover, this model does provide an understanding with practical ramifications. The model serves as a basis for actions on a part of an individual that will result in greater rationality and more nuanced judgments. These are the major practical insights from this model:

- You have to work at being rational. People have the potential for being both rational and irrational, but the default mode of providing responses with minimum cognitive

³² Pirolli, P. *Information Foraging Theory: Adaptive Interaction with Information*, Oxford University Press, Oxford, UK, 2007, p. 9.

³³ Chao, C. & Salvendy, G. "Impact of Cognitive Abilities of Experts on the Effectiveness of Elicited Knowledge," *Behaviour & Information Technology*, Vol. 14, No. 3, 1995, p. 174.

³⁴ Sternberg, R.J. "Epilogue: What do we Know about Tacit Knowledge? Making the Tacit Become Explicit," in *Tacit Knowledge in Professional Practice: Researcher and Practitioner Perspectives*, eds. R.J. Sternberg & J.A. Horvath, Lawrence Erlbaum Publishers, Mahwah, NJ, 1999, p. 231.

effort is likely to result in irrational thought. This is not the consequence of a defect or a limitation of the mind as these terms are normally used. The default mode of irrationality is the natural consequence of the autonomous mind, which is the result of evolutionary factors.

- Few differences exist in the autonomous mind between individuals except for the information learned from extensive practice such as playing golf, driving a car, or visual inspections.
- The capability of the algorithmic mind is determined by its ability to execute tasks analogous to a computer. This ability is largely innate but can be enhanced by learning various processing techniques and other procedural knowledge.
- The reflective mind is the primary source for rational thought which is largely determined by the mindware it uses to perform its functions.
- Mindware is probably the most important factor in producing rational thought. While mindware does not have inherent limitations, gaps and contamination in the mindware are a source of irrationality. Fortunately, mindware is the most susceptible part of the mind to efforts to improve its quality and to address gaps and contamination.
- Thinking dispositions associated with rational thought are known. For some, the use of an appropriate thinking disposition will naturally occur. But, almost everyone will benefit by learning the positive thinking dispositions and applying them during the formulation of thought.
- Beliefs have a very powerful influence on rational thought. It is extremely difficult for an individual to inventory their beliefs. However, with effort you can identify the beliefs that exhibit a major role in your thinking. You need to scrutinize these beliefs to determine if they are valid or should be replaced by new beliefs. The recipients of your thinking, whether yourself or others, need to be informed of the beliefs that were instrumental in forming your judgments.
- Understanding purpose is instrumental to your thinking. Your thinking will reflect your understanding of your purpose. An incomplete or inaccurate understanding of purpose will likely result in thinking that is not relevant to the issue to be addressed. An important characteristic of purpose is that it is not a static condition and will vary as the problem being thought about changes. Literally, every time one starts thinking on a topic or condition, the purpose for thinking about the topic or condition will have to be established.
- It is highly likely that substantial differences exist in the mindware and procedural knowledge between individuals. These differences account for the often observed fact that the same information can have different meaning to different individuals.
- Mindware is not static but continually changes. When significant changes occur, the possibility exists that the meaning assigned to information based on prior mindware will require re-analysis.
- The existence of a default mode (i.e., the autonomous mind) does not preordain a person to irrational thoughts. Other partitions of the mind exist, the algorithmic and reflective, that can override the action of the autonomous mind and produce a

rational response. With awareness and effort, one can produce rational output from the mind.

Applying the preceding information does not guarantee rationality in thought. However, by applying this information, the probability of rational thought will be significantly enhanced. **Consequently, this information provides the guidelines for improved analytical results.**

3.3 Knowing Yourself

The prior portion of this section dealt with irrationality, whether based on cognitive biases or irrational beliefs. The purpose of this portion of the section is to describe some of the most frequently observed irrational behaviors. The ability to recognize behaviors as irrational is the first step in efforts to preclude such behavior.

3.3.1. Cognitive Biases

As stated earlier, a very large body of research has been conducted to show the behavior of people that deviates from rationality. While some controversy exists regarding the nature of this research, most people under a variety of circumstances exhibit these cognitive biases. Appendix A is a listing of the cognitive biases identified from this research and is provided for your awareness.

The many ways people can deviate from rationality is evident by the extent of this list. Not all people show these biases under all circumstances. However, under most circumstances, the preponderance of people behaves as described. The magnitude of these results validates the observation that "If you are like most people, then like most people, you don't know you're like most people."³⁵

3.3.2. Performance Factors

In addition to the above cognitive biases, other aspects of behavior have been observed that definitely affect one's thinking. Nearly all of the following behaviors stem from faulty mindware, particularly from beliefs.

3.3.3. Self-Appraisal

The first thing you need to recognize is that you may not be as competent as you think you are. You have all likely heard of the Lake Wobegon effect where all the students are above average. One thinks of this as a comedian's line, but in effect this reflects a real condition of personal self evaluation. Numerous studies have been done on self appraisal on a variety of performance attributes, and the results are consistent in all of these studies. A high majority of the people rate themselves as being above average.

One of the most revealing studies was performed by Kruger and Dunning³⁶ in which participants were asked to assess their ability in areas related to knowledge and wisdom, humor, logical reasoning, and writing. In addition, the participants took a test in each of these areas that was designed to measure their ability. The test results were scored by people deemed experts in each of these fields. The results were consistent with other similar research. On average, the

³⁵ Gilbert as cited by Stanovich p. 201.

³⁶ Kruger, J. & Dunning, D. "Unskilled and Unaware of it: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments," *Journal of Personality and Social Psychology*, Vol. 77, No. 6, 1999, pp. 1121-1134.

participants rated themselves as above average in ability; but the test results demonstrated abilities inconsistent with the self appraisal. Additional insight was gained by examining the results on an individual basis. Two noteworthy results were that some people, generally less than 25% of the participants, were able to accurately assess their abilities. In contrast, the gap between the self assessment and the measured assessment was greatest for the people with the lowest ability.

The results were all the more surprising given the nature of the participants. They were all Cornell University undergraduates. Since the general acceptance rate at Cornell is about 30%, the participants hardly represent the distribution of ability in the general population. A general correlation between the SAT scores of Cornell students and Intelligence Quotient (IQ) indicates that the students are in the upper 20 percentile of the population. Thus, perhaps only 10% of the general population may be able to accurately assess their own abilities.

The scope of inquiry was also expanded by giving the participants examples of competent results of grammar use. The least competent participants were unable to recognize competence. Indeed, the lowest rated participants tended to raise their appraisal of their own competence when confronted with competent results. Thus the researchers concluded that the least competent are unable to recognize competence when they see it. These results seem to confirm the observation:

In short, one's knowledge of the limitations of one's knowledge is itself necessarily limited by one's knowledge: The less one knows, the less one can be aware of how much one does not know.³⁷

The last finding has application in the intelligence analysis process. A natural part of this process is the review and critique of an analyst's product. Instinctively, we may not readily accept critical comments on our efforts. The work of Kruger and Dunning suggests that we should not immediately reject substantive comments. In doing so, we might be rejecting a learning experience. Thoughtful consideration in assessing the comments is in order since the person making those comments may know more than we.

3.3.4. Peer Assessment

As described above, despite the opportunity to have a wealth of knowledge about themselves, a large number of people are unable to accurately appraise their own capabilities. In stark contrast with these results are those that show that an individual's capabilities can be accurately, in many case more accurately, assessed by others.³⁸ Even total strangers provided with a limited amount of information can perform an accurate assessment. The behaviors better predicted by others cover a wide spectrum. They include almost all of those behaviors which individuals inaccurately predict relative to themselves. These behaviors include prediction of promotion into a leadership position, scoring on a test of surgical skills, the duration of a romantic relationship, donation to charitable causes, and time to accomplish a task. In the work environment, the offset between self assessment and the assessment of others includes those of both coworkers and

³⁷ Nickerson, R.S. "How we Know - and Sometimes Misjudge - what Others Know: Imputing One's Own Knowledge to Others," *Psychological Bulletin*, Vol. 125, No. 6, 1999, p. 749.

³⁸ Dunning, D., Heath, C. & Suls, J.M. "Flawed Self-Assessment: Implications for Health, Education, and the Workplace," *Psychological Science in the Public Interest*, Vol. 5, No. 3, 2004, p. 71.

supervisors. The possibility that they know you better than you know yourself should be a consideration in your interaction with others.

2.3.5. Physical Aspects

You're no doubt familiar with the phrase "sound mind, sound body." Recent research indicates that Buddha had an accurate understanding of the relationship:

To keep the body in good health is a duty... otherwise we shall not be able to keep our mind strong and clear.

Contrary to conventional wisdom that thinking is not hard work, an increasing amount of research shows that your brain can become tired.³⁹ This research also shows that a tired brain does not function as well as a rested brain. The state of the brain, tired or rested, affects the decision making function of the brain; tests show poorer decisions are made with a tired brain than with a rested brain.

The prescription for resting your brain is little different than that for resting a muscle: give it a rest. However, for the brain this is easier said than done since not thinking is a difficult state to achieve. Interestingly, the environment in which you are placed does have a significant effect on the recovery of the brain. Research has shown that interacting with nature significantly improves the cognitive function.⁴⁰ In contrast, strolling in a city has less of restorative effect on the brain. The difference has been attributed to the fact that an urban environment demands your attention as a matter of routine. For example, strolling in a city requires that your brain be constantly engaged to avoid cars and people and to arrive at the desired destination.

Not surprisingly, sleep is another means of achieving a rested brain. In addition, sleep also affects our memories in terms of consolidation and learning. The most recent research shows that while sleep in general is good, the beneficial impact is much higher for specific types of sleep. This research provides evidence supporting the anecdotal stories of how major scientific discoveries occurred after sleep. According to the research, deep Rapid Eye Movement (REM) sleep will significantly improve performance on creative problem solving tasks. Test subjects that had non-REM sleep or rest did not show a corresponding improvement in performance.⁴¹ On the negative side, a lack of sleep will produce false memories.⁴²

Nutrition can also restore a tired brain. People were given tasks that required lots of thinking and reasoning. Consistent with other research, the people with a tired brain did not make effective decisions. However, with an increase in blood-sugar levels the brain functions were restored and effective decisions were made.⁴³

³⁹ Amir, O. "Tough Choices: How Making Decisions Tires Your Brain", *Scientific American: Mind Matters*, [Online], 2008. Available: <http://www.scientificamerican.com/article.cfm?id=tough-choices-how-making>

⁴⁰ Lehrer, J. "The Cognitive Benefits of Nature", [Online], 2008. Available: http://scienceblogs.com/cortex/2008/11/the_cognitive_benefits_of_natu.php

⁴¹ Cai, D., Mednick, S., Harrison, E., Kanady, J. & Mednick, S. "REM, Not Incubation, Improves Creativity by Priming Associative Networks," *Proceedings of the National Academy of Sciences*, Vol. 106, No. 25, 2009, pp. 10130-10134.

⁴² Lehrer, J. "Don't Trust an Insomniac", [Online], 2008, Available: http://scienceblogs.com/cortex/2008/11/dont_trust_an_insomniac.php

⁴³ Anonymous. "Sugaring the Decision" *Economist*, Vol. 386, No. 8573, pp. 104-106.

3.3.6. External Influences

A topic of considerable research is what is called the “self-fulfilling prophecy effect.” The self-fulfilling prophecy effect is when a person’s belief about another’s capabilities will elicit behavior consistent with that belief. This effect has been observed over a wide variety of subjects and topics. A notable example was a study on teachers and their interactions with students. A randomly selected group of students were identified as having above average IQ. At the end of a year, those so identified showed more progress than their fellow students not so identified.⁴⁴

So regardless of your opinion of yourself, your coworkers’ or supervisors’ opinions of your capabilities could enhance or degrade your performance. Of course, this is a reciprocal effect. Your opinion of your coworkers or supervisors could also be affecting their performance. This could easily become a mutually reinforcing self-fulfilling prophecy effect where both parties are diminishing the performance of the other party, a very negative consequence in the workplace. The research findings on this topic support Cooper’s observation:

One of the best established findings in social psychology is that the expectations one person holds for another can affect the other person's behavior.⁴⁵

A similar effect can be observed with people who are members of a stereotyped group. If they are reminded that they are part of such a group, their performance will degrade consistent with the stereotype. In contrast, people not so reminded will perform contrary to the stereotype.⁴⁶

Others can affect your behavior in even more subtle ways. Being exposed to a random list of words that contain a preponderance of words relating to a specific behavior will cause one to adapt and behave consistently with those words. For example, when non-elderly people were exposed to words associated with the attributes of being elderly, they physically mimicked the behavior of the elderly.⁴⁷ In a similar experiment, people exposed to words associated with either courteous or aggressive behavior subsequently acted in a manner consistent with the words they had read.

Groups can also intensify the strength of your beliefs. If you spend some time in a discussion with a group who largely believes the same as you do, after these discussions your beliefs will not only be stronger but more extreme in their interpretation.⁴⁸

3.3.7. Internal Influences

As part of the state of your mind, you have an extensive set of beliefs that govern how you interpret information. If you are convinced that a relationship exists between cost and quality your judgment of all products will be so influenced. This has been demonstrated in many different products and circumstances. For example, when people are given the same wine with one sample labeled as less expensive than another sample, they consistently judge the more

⁴⁴ Olson, J.M., Roese, N.J. & Zanna, M.P. "Expectancies," in *Social Psychology: Handbook of Basic Principles*, Eds. E.T. Higgins & A.W. Kruglanski, Guilford Press, New York, NY, 1996, p. 222.

⁴⁵ Cooper, H.M. *Synthesizing Research: A Guide for Literature Reviews*, 3rd Edn, Sage Publications, Thousand Oaks, CA, 1998, p. 10.

⁴⁶ Ariely p. 168.

⁴⁷ Ariely p. 171.

⁴⁸ Sunstein, C.R. *Why Societies Need Dissent*, Harvard University Press, Cambridge, MA, 2003, p. 111.

expensively labeled wine as superior⁴⁹ A similar effect occurred when wine glasses were evaluated even though taste tests detected no difference as a function of the glasses used for drinking.⁵⁰ Another example showed that people consistently preferred Coke over Pepsi when they could see the labels. When the labels were removed, Pepsi was the preferred drink.⁵¹ The same effect has even been found in medicines. People reported different reactions from the same pill depending on the price associated with the pill.⁵²

The most famous of the self-influence effects is the placebo effect. Innumerable tests have been conducted about patient reactions to treatment when they thought they were getting the treatment. The effect has not only been demonstrated for medicines but many other types of treatment including surgery.⁵³ How the placebo effect works is not well understood, but the effect demonstrates how our mind assigns meaning to information that then controls our body.

Of all the personal beliefs that affect one's performance one of the most surprising is the effect from one's belief in the nature of human intelligence. Some believe that intelligence is a fixed trait determined by inherited genes. The opposite belief is that intelligence can be improved by the appropriate environment. These two beliefs are widely held and debated, although some such as Stanovich believe that the debate is over even if the public is unaware of it.⁵⁴

Dweck⁵⁵ measured the performance of two groups with people of equivalent levels of intelligence based on IQ tests. The groups had different views on the nature of intelligence. One group believed that a person's intelligence is fixed and determined by one's inherited genes. The other group believed in a malleable concept of intelligence, i.e., that it can be increased by appropriate effort. Those who believed that intelligence is fixed were discouraged by failure in cognitive tests, lost confidence in themselves, and avoided challenging situations. Even their performance was affected by failure. Often if they retook a test that they successfully completed before experiencing failure, they would do less well than originally. The opposite behavior was noted for those that believed in malleable intelligence. They believed that effort is important and were willing to put forth an increasing amount of effort. The groups even differed in the way they responded to praise. When the group that believed intelligence was fixed was complimented on being smart, their subsequent performance was reduced. In contrast, praise for efforts by the group believing in malleable intelligence resulted in increase subsequent performance.

3.3.8. So What – Again

As mentioned previously, the behaviors identified in this portion of the section are not inevitable. One is not predestined to exhibit any of these behaviors. In fact, an interesting aspect of the research that has identified these behaviors is that a percentage of the participants, usually less than 25%, behave in a rational manner. Research is underway to understand why these people

⁴⁹ Goldstein, R., Almenberg, J., Dreber, A., Emerson, J.W., Herschkowitsch, A. & Katz, J. *Do More Expensive Wines Taste Better? Evidence from a Large Sample of Blind Tastings*, American Association of Wine Economists (AAWE) Working Paper No. 16, Walla Walla, WA, 2008.

⁵⁰ Ariely p. 165.

⁵¹ Ariely p. 166.

⁵² Ariely p. 181.

⁵³ Ariely p. 174.

⁵⁴ Stanovich, K.E. *What Intelligence Tests Miss: The Psychology of Rational Thought*, Yale University Press, New Haven, CT, 2009, p. 20.

⁵⁵ Dweck, C.S. "Beliefs that Make Smart People Dumb," in *Why Smart People can be so Stupid*, ed. R.J. Sternberg, Yale University Press, New Haven, CT, 2002, pp. 24-41.

behave differently. The results of this research are generally inconclusive, but the behavior doesn't seem to correlate with the IQs of the participants. Being smarter does not necessarily protect one from irrational behavior.

But even without the instincts of those who seem to be able avoid irrational behavior, you can emulate their performance with knowledge of what irrationality is and of its sources. A variety of techniques are available that will help ameliorate tendencies towards irrationality. Applying these techniques requires both awareness and the expenditure of considerable effort. One such technique, Writing As Thinking, is discussed in the next portion of this section. Throughout the FAC, we will continue to provide information to increase your knowledge and awareness to help you achieve more rational analysis.

Forewarned, forearmed: to be prepared is half the victory

--Miguel de Cervantes

3.4 Writing as Thinking: Using Written Expression to Improve Your Analysis

Don't think and then write it down. Think on paper.

— Harry Kemelman

The best reason for putting anything down on paper is that one may then change it.

— Bernard De Voto

3.4.1. Introduction

In this portion of the FAC, we discuss the concept of writing as thinking, or *epistemic* writing. Epistemic writing is writing that not only results from thought, but writing that become “an integral part of thought.”⁵⁶ Writing can be used not only to communicate with others, but also to help you generate ideas, to engage in self-reflection as you develop your thoughts about a topic, and to connect and develop those ideas into coherent themes and assessments. Epistemic writing is more than open-ended idea generation or simple note-taking. Being self-reflective aids you in considering new ideas not considered before. It promotes further examination of your thoughts, resulting in an increased richness and clarity of analytic understanding. In effect, writing as thinking is communicating with yourself. As we discussed in the “Thinking about Thinking” and “Knowing Yourself” portions of this section of the FAC, it is necessary for you to deliberately reflect upon and develop the content of your mind. Writing can be an important aid to these cognitive efforts.

In studying writers' comments about writing in publications outside of intelligence analysis, the experience of learning or creating something new while authoring a work seems to be almost universal among accomplished writers. The act of writing is more than just creating a readable text; it becomes a means for writers to enlarge their understanding of what they are trying to communicate.

In addition, writing is a means of making your thoughts concrete so that you can analyze them further. When your thinking is all in your head, it is easy to ignore flaws in your mindware. That is, you lack what is known as *metacognitive distance*⁵⁷ from your ideas when they are

⁵⁶ Bereiter, C. & Scardamalia, M. *The Psychology of Written Composition*, L. Erlbaum Associates, Hillsdale, NJ, 1987, p. 88.

⁵⁷ Dunn, P.A. *Talking, Sketching, Moving: Multiple Literacies in the Teaching of Writing*, Boynton/Cook, Portsmouth, NH, 2001.

unexpressed. Metacognitive distance is the process of stepping outside your own ideas in order to analyze and reshape your thinking. Once your ideas are captured in writing, you can think about the thinking that the written word represents and take a closer look at your assumptions, beliefs, and knowledge. Writing can become an important strategy to mitigate many of the cognitive pitfalls you may encounter during intelligence analysis.

While the role of writing as thinking is widely recognized in the general literature about composition, the use of writing to aid cognition is not acknowledged in the intelligence literature. The research we conducted before developing the FAC determined that the intelligence analysis literature views writing as primarily a means of creating a final product for the customer. The intelligence analysis literature does not appear to recognize that writing can be integrated with thinking and that writing done with this approach has the potential to improve the cognition associated with intelligence analysis.

Authors not only relegate writing to the later stages of intelligence analysis but also consider it primarily the production of grammatically correct, easy to read and understand deliverables. For example, this is the description of writing provided in a table labeled “Cognitive Abilities Required of Intelligence Analysts:”

Written Expression: The ability to use words and sentences in writing so others will understand. Involves knowledge of the meanings and distinctions among words, knowledge of grammar, and the ability to organize sentences and paragraphs.⁵⁸

Other articles in intelligence publications give only a passing mention to writing when discussing the skills that analysts need. Moore, Krizan, and Moore mention “literacy”⁵⁹ in a chart with no elaboration in the text. Moore and Krizan⁶⁰ mention that analysts need basic writing skills but that they often lack them.

In this portion of the FAC we present some background information about the role of written expression in thinking, present the use of written expression as a form of discovery, and discuss how written expression is integrated into the FAC.

3.4.2. Knowledge Telling vs. Knowledge Transformation

Researchers who study written composition make a distinction between two types of written expression: *knowledge telling* and *knowledge transformation*. Knowledge telling is the production of text which is on topic, but which relies on the writer’s readily available knowledge. Knowledge telling “preserves the straight-ahead form of oral language production and requires no significantly greater amount of planning or goal-setting than does ordinary conversation.”⁶¹ Knowledge telling writing strategies are common in elementary or middle school students, but also persist in high school and college writing assignments. Many adult writers in business or professional settings also use a knowledge telling approach in carrying out their responsibilities.

⁵⁸ Krizan, L. *Intelligence Essentials for Everyone*, Joint Military Intelligence College, Washington, D.C., 1999, p. 56.

⁵⁹ Moore, D.T., Krizan, L. & Moore, E.J. "Evaluating Intelligence: A Competency-Based Model," *International Journal of Intelligence and Counterintelligence*, Vol. 18, No. 2, 2005, p. 206.

⁶⁰ Moore, D.T. & Krizan, L. "Intelligence Analysis: Does NSA have what it Takes?" *Cryptologic Quarterly*, Vol. 20, No. 1-2, 2001, p. 17.

⁶¹ Bereiter, C. & Scardamalia, M. *The Psychology of Written Composition*, L. Erlbaum Associates, Hillsdale, NJ, 1987, p.10.

In contrast, *knowledge transformation* is thinking “in which the thoughts come into existence through the composing process itself, beginning as inchoate entities (“dribbles”) and gradually, by dint of much rethinking and restating, taking the form of fully developed thoughts.”⁶² Written expression that results in knowledge transformation has been observed to include problem-solving and planning activities. The writer is involved in “deliberately formulating and pursuing personally meaningful goals in writing, for recognizing and overcoming problems, and for assessing and revising choices made at a variety of levels.”⁶³

The distinction between knowledge telling and knowledge transformation in intelligence analysis is an important one. As we mentioned in the Introduction and Background Section of the FAC, unless analysis results in something that was not explicitly contained in the information under analysis, analysis has not been done; the result is reporting. One of our goals in recommending the use of writing to aid thinking is to encourage a knowledge transforming approach to intelligence analysis. The next part discusses the specific points in the FAC where knowledge transformation may take place.

3.4.3. Epistemic Writing and the FAC

We believe that there are six key cognitive challenges that intelligence analysts face during intelligence analysis. They are:

- Discerning the intelligence issue
- Translating the intelligence issue into a plan for analysis
- Transforming the intelligence issue into a search strategy
- Assigning meaning to or deriving meaning from the information obtained
- Marshalling of the evidence to arrive at an answer to the issue being addressed
- Communicating the results of the analysis effort to the customer

When you are faced with these cognitive challenges, how do you accomplish each of them? For example, consider the challenge of discerning an intelligence issue, whether coming from a customer or initiated by you. We reviewed a recent document that discussed STA techniques. It suggested that describing the customer’s problem could be accomplished in “5-10 minutes.”⁶⁴

The authors of this document recommend thinking about the customer’s problem using a few questions, but didn’t investigate how an analyst might engage more deeply with the customer’s problem. The model for understanding a customer’s intelligence issue in this approach is based on knowledge telling: the analyst uses the information he or she has on hand to conceptualize the customer’s intelligence issue.

The FAC, however, relies on writing as one of the key cognitive supports for addressing these analytic challenges. Using the example concerning the customer’s problem given above, the guidelines in the FAC encourage you to work towards understanding the customer’s problem in a variety of ways, including writing down your thinking and questions about the customer’s intelligence issue. Initially, writing down your thoughts will serve to develop your understanding and questions about the intelligence issue. This thinking, expressed in writing, will be used as you interact with the customer to better understand his or her needs and

⁶² Bereiter p. 10.

⁶³ Bereiter p. 10.

⁶⁴ Anonymous. *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis* 2009, p. 5.

perspective. Ultimately, the written representation of the issue becomes the means by which you and the customer reach a mutual understanding of the issue. The FAC provides you with suggestions and guides that not only help you assess your current knowledge but also extend your knowledge. These activities encourage you to engage in the issue; writing becomes a path to knowledge transformation.

The majority of the writing you do to address the above challenges will be only for yourself. Some of the ideas and text that you create will be used again when you write the product that you will deliver to the customer. At times you may share some of this writing with the customer or your colleagues for discussion and feedback but they are created by you, for you, to help you think better about the analysis work you are doing.

Finally, the FAC does not prescribe any one method of using writing as thinking. What works for one person creates writer's block, and therefore thinker's block, for another. For example, no one environment has proven to be the best for writing. Surveys of professional authors have found a wide range of preferences for noise, time of day, writing instruments, setting, clothing, paper, and technology. Some authors' preferences are rooted in superstition and long habit. The same can be said for note-taking, outlining, research, revision, and editing. We encourage you to discover what works best for you. The key is to engage in self-reflection and develop and connect ideas into coherent themes using whatever methods work for you.

In the following sections we will discuss some concepts related to writing as thinking that explain the topic further. These include the ideas of idea generation, text generation, and the role of revision in epistemic writing.

3.4.4. Idea Generation vs. Text Generation

If you accept the challenge of using writing as a means of thinking, you may need to view the steps you use to create a written piece differently. Instead of knowing what you want to say before you say it, for example, you may need to adopt the viewpoint of many skilled writers: they consider writing as a "voyage into the unknown."⁶⁵

Once you've undertaken the voyage, writing helps you both capture your ideas and then ultimately communicate them to your audience. One strategy for using writing to improve your thinking is to separate idea generation from text generation. This is especially helpful in the early stages of writing. Collins and Gentner discuss the role of idea generation and text generation in their framework for a cognitive theory of writing:

The importance of the distinction between producing ideas and producing text cannot be overemphasized...one of the most damaging habits for a novice writer to have is that of confusing idea manipulation with text manipulation so that text structure constraints enter into the process of writing at an early stage, before the ideas are ready. When this happens, not only does the writer waste a great deal of time and effort polishing prose that will eventually be discarded, but, even worse, the effort to perfect text may cause the writer to lose track of the desired content. Part of the reason that novice writers have difficulty accepting the distinction between idea production and text production is that **it is very unintuitive to realize the degree to which one's own ideas can be opaque, inaccessible, self-contradictory, and in other ways in need of considerable strategic**

⁶⁵ Murray, D.M. *Write to Learn*, 8th Edn, Thomson Wadsworth, Boston, MA, 2005.

management in order to emerge as the clear, well-reasoned positions we believe we have. [emphasis added]⁶⁶

Intelligence analysis requires both idea generation and text generation. However, in order to be effective, it also requires particular kinds of idea generation and text generation. “Writing as Thinking” focuses on idea generation. In the “Analysis Representation” section we will discuss bringing all the various written representations that you develop throughout the FAC into an integrated form. Text generation for the purpose of communicating to your customers will be covered in the “Customer Product” section of the FAC. The following discussion presents more details about idea generation and other aspects of writing as thinking.

3.4.5. Two Dimensions of Idea Generation

If you write while you are generating ideas, your writing plays two important roles in your thinking. Writing down an idea as it occurs captures it as a tangible artifact. Once the artifact is created, you have a medium for exploring an idea further, adding new knowledge to an idea, creating other new ideas, or even rejecting the idea once you have pursued it further in writing. Written expression becomes the “**externalization of cognition**” [emphasis added] as described in the following passage:

One way to overcome the difficulties of performing such complex knowledge manipulation in the head is to capture ideas on paper (or some other external medium such as a computer screen) in the form of external representations that stand for mental structures. So long as ideas, plans, and drafts are locked inside a writer's head, then modifying and developing them will overload the writer's short-term memory... Writing creates external representations and the external representations condition the writing process. Cognition is not simply expressed or amplified through the use of external representations, but rather the nature of thought is determined by the mind's dialectical interaction with the world as constructed by human beings (Kuutti, 1991; Wood, 1992). Notes, sketches, outlines, tables, topic lists, concept maps, and argument structures are both representations of mental content and things in themselves, new stimuli dissociated from the moment of their production and available for reinterpretation.⁶⁷

Creating a written record of ideas not only captures them, but makes them available as material for further exploration during a cognitive effort. The written representation frees the brain from trying to remember ideas as they occur and provides new material for more thinking. The ideas you generate during intelligence analysis can be captured as short notes, charts, sketches, diagrams, tables – not just paragraphs consisting of complete sentences. The tools or supplies you use to write down and store the ideas are also not crucial to better cognition. The most critical writing task at each phase of the FAC is that you capture the ideas you are generating in some form so that they are available for further reference and thought.

⁶⁶ Collins, A. & Gentner, D. "A Framework for a Cognitive Theory of Writing," in *Cognitive Processes in Writing*, eds. L.W. Gregg & E.R. Steinberg, L. Erlbaum Associates, Hillsdale, NJ, 1980, p. 53.

⁶⁷ Sharples, M. (1996). "An Account of Writing as Creative Design" in *The Science of Writing: Theories, Methods, Individual Differences, and Applications*, eds. C. M. Levy & S. E. Ransdell, L. Erlbaum, Mahwah, NJ, pp. 127-148.

3.4.6. The Role of Revision in Epistemic Writing

Once an idea becomes a tangible artifact, you can think about the thinking that it represents. Writing gives you metacognitive distance from an idea and a method for re-thinking what you have written: revision. Our research has provided more insight into two styles of revision:

Internal Revision. Under this term, I include everything writers do to discover and develop what they have to say, beginning with the reading of a completed first draft. They read to discover where their content, form, language, and voice have led them. They use language, structure, and information to find out what they have to say or hope to say. The audience is one person: the writer.

External Revision. This is what writers do to communicate what they have found they have written to another audience. It is editing and proofreading and much more. Writers now pay attention to the conventions of form and language, mechanics, and style. (Murray 1978)⁶⁸

You will notice throughout the FAC that, whenever a written artifact is recommended, we will encourage you to focus on internal revision when you use the written artifact to develop your own thinking. You will concentrate on external revision when you are communicating the understanding that you've developed. We supply guides to help you get your original ideas down on paper, we recommend obtaining feedback and more information, and we advise you to identify your target audience and create documents that meet that audience's needs.

3.4.7. Summary: Writing as Thinking in Intelligence Analysis

The intelligence literature and tradition is focused on writing as the final stage of intelligence analysis. However, thinking occurs throughout analysis. This section of the FAC puts forth the concept of writing for yourself as a means of capturing your thinking about a topic, manipulating those thoughts to create new thoughts, and validating your thinking once you have expressed it in writing. Writing as thinking is essential to help you develop ideas into coherent themes and assessments and to encourage you to engage in self-reflection about the development of your thoughts. Writing is necessary to help you deliberately reflect upon and develop the contents of your mind as we discussed in the "Thinking about Thinking" and "Knowing Yourself" sections of the FAC. All of this activity takes place before you communicate your understanding of an issue to other analysts or to your customer.

Besides helping your own analysis efforts, writing as thinking can benefit others that work with you. When you capture your thoughts during all stages of intelligence analysis, you will ultimately be better able to communicate your thinking to your colleagues and customers. They in turn will be better able to understand how you arrived at the judgments you develop.

The FAC is intended to help build your metacognitive awareness – your ability to separate **what** you think from **how** you think. Using writing as thinking first captures what you think and then lets you analyze your written thoughts to evaluate how you are thinking. No other cognitive aid offers this powerful support to intelligence analysis and the cognitive challenges it represents.

⁶⁸ Murray, D. M. (1978). "Internal Revision: a Process of Discovery" in *Research on Composing: Points of Departure*, eds. C. R. Cooper & L. Odell, National Council of Teachers of English, Urbana, IL, pp. 85-103.

Writing is easy. You just sit down at a typewriter and open a vein.

--Red Smith

3.5 Cognitive Biases⁶⁹ - A Supplement

The following sections elaborate the biases identified by researchers. We provide these as a reference and to demonstrate the wide variety of biases that have been identified in publications outside of intelligence analysis.

3.5.1. Decision-Making and Behavioral Biases

- Bandwagon effect — the tendency to do (or believe) things because many other people do (or believe) the same.
 - Base rate fallacy — ignoring available statistical data in favor of particulars.
- Bias blind spot — the tendency not to compensate for one's own cognitive biases.
- Choice-supportive bias — the tendency to remember one's choices as better than they actually were.
- Confirmation bias — the tendency to search for or interpret information in a way that confirms one's preconceptions.
- Congruence bias — the tendency to test hypotheses exclusively through direct testing, in contrast to tests of possible alternative hypotheses.
- Conservatism bias — the tendency to ignore the consequence of new evidence.
- Contrast effect — the enhancement or diminishing of a weight or other measurement when compared with a recently observed contrasting object.
- Déformation professionnelle — the tendency to look at things according to the conventions of one's own profession, forgetting any broader point of view.
- Distinction bias — the tendency to view two options as more dissimilar when evaluating them simultaneously than when evaluating them separately.
- Endowment effect — "the fact that people often demand much more to give up an object than they would be willing to pay to acquire it".
- Experimenter's or Expectation bias — the tendency for experimenters to believe, certify, and publish data that agree with their expectations for the outcome of an experiment, and to disbelieve, discard, or downgrade the corresponding weightings for data that appear to conflict with those expectations.
- Extraordinariness bias — the tendency to value an object more than others in the same category as a result of an extraordinariness of that object that does not, in itself, change the value.
- Extreme aversion — the tendency to avoid extremes, being more likely to choose an option if it is the intermediate choice.

⁶⁹ *List of Cognitive Biases*. Wikipedia, 5 May 2009.

- Focusing effect — prediction bias occurring when people place too much importance on one aspect of an event; causes error in accurately predicting the utility of a future outcome.
- Framing — by using a too narrow approach or description of the situation or issue. Also framing effect — drawing different conclusions based on how data are presented.
- Hyperbolic discounting — the tendency for people to have a stronger preference for more immediate payoffs relative to later payoffs, where the tendency increases the closer to the present both payoffs are.
- Illusion of control — the tendency for human beings to believe they can control or at least influence outcomes that they clearly cannot.
- Impact bias — the tendency for people to overestimate the length or the intensity of the impact of future feeling states.
- Information bias — the tendency to seek information even when it cannot affect action.
- Irrational escalation — the tendency to make irrational decisions based upon rational decisions in the past or to justify actions already taken.
- Loss aversion — "the disutility of giving up an object is greater than the utility associated with acquiring it".
- Mere exposure effect — the tendency for people to express undue liking for things merely because they are familiar with them.
- Moral credential effect — the tendency of a track record of non-prejudice to increase subsequent prejudice.
- Need for closure — the need to reach a verdict in important matters; to have an answer and to escape the feeling of doubt and uncertainty. The personal context (time or social pressure) might increase this bias.
- Neglect of probability — the tendency to completely disregard probability when making a decision under uncertainty.
- Not Invented Here — the tendency to ignore that a product or solution already exists, because its source is seen as an "enemy" or as "inferior".
- Omission bias — the tendency to judge harmful actions as worse, or less moral, than equally harmful omissions (inactions).
- Outcome bias — the tendency to judge a decision by its eventual outcome instead of based on the quality of the decision at the time it was made.
- Planning fallacy — the tendency to underestimate task-completion times.
- Post-purchase rationalization — the tendency to persuade oneself through rational argument that a purchase was a good value.
- Pseudocertainty effect — the tendency to make risk-averse choices if the expected outcome is positive, but make risk-seeking choices to avoid negative outcomes.
- Reactance — the urge to do the opposite of what someone wants you to do out of a need to resist a perceived attempt to constrain your freedom of choice.

- Selective perception — the tendency for expectations to affect perception.
- Status quo bias — the tendency for people to like things to stay relatively the same (see also loss aversion, endowment effect, and system justification).
- Von Restorff effect — the tendency for an item that "stands out like a sore thumb" to be more likely to be remembered than other items.
- Wishful thinking — the formation of beliefs and the making of decisions according to what is pleasing to imagine instead of by appeal to evidence or rationality.
- Zero-risk bias — preference for reducing a small risk to zero over a greater reduction in a larger risk.

3.5.2. Biases in Probability and Belief

- Ambiguity effect — the avoidance of options for which missing information makes the probability seem "unknown".
- Anchoring — the tendency to rely too heavily, or "anchor," on a past reference or on one trait or piece of information when making decisions.
- Attentional bias — neglect of relevant data when making judgments of a correlation or association.
- Authority bias — the tendency to value an ambiguous stimulus (e.g., an art performance) according to the opinion of someone who is seen as an authority on the topic.
- Availability heuristic — estimating what is more likely by what is more available in memory, which is biased toward vivid, unusual, or emotionally charged examples.
- Availability cascade — a self-reinforcing process in which a collective belief gains more and more plausibility through its increasing repetition in public discourse (or "repeat something long enough and it will become true").
- Clustering illusion — the tendency to see patterns where actually none exist.
- Capability bias — the tendency to believe that the closer average performance is to a target, the tighter the distribution of the data set.
- Conjunction fallacy — the tendency to assume that specific conditions are more probable than general ones.
- Gambler's fallacy — the tendency to think that future probabilities are altered by past events, when in reality they are unchanged. Results from an erroneous conceptualization of the normal distribution.
- Hawthorne effect — the tendency of people to perform or perceive differently when they know that they are being observed.
- Hindsight bias — sometimes called the "I-knew-it-all-along" effect, the inclination to see past events as being predictable.
- Illusory correlation — beliefs that inaccurately suppose a relationship between a certain type of action and an effect.

- Ludic fallacy — the analysis of chance related problems according to the belief that the unstructured randomness found in life resembles the structured randomness found in games, ignoring the non-gaussian distribution of many real-world results.
- Neglect of prior base rates effect — the tendency to neglect known odds when reevaluating odds in light of weak evidence.
- Observer-expectancy effect — when a researcher expects a given result and therefore unconsciously manipulates an experiment or misinterprets data in order to find it (see also subject-expectancy effect).
- Optimism bias — the systematic tendency to be over-optimistic about the outcome of planned actions.
- Ostrich effect — ignoring an obvious (negative) situation.
- Overconfidence effect — excessive confidence in one's own answers to questions.
- Positive outcome bias — a tendency in prediction to overestimate the probability of good things happening to them.
- Pareidolia, vague and random stimulus (often an image or sound) are perceived as significant, e.g., seeing images of animals or faces in clouds, the man in the moon, and hearing hidden messages on records played in reverse.
- Primacy effect — the tendency to weigh initial events more than subsequent events.
- Recency effect — the tendency to weigh recent events more than earlier events
- Disregard of regression toward the mean — the tendency to expect extreme performance to continue.
- Reminiscence bump — the effect that people tend to recall more personal events from adolescence and early adulthood than from other lifetime periods.
- Rosy retrospection — the tendency to rate past events more positively than they had actually rated them when the event occurred.
- Selection bias — a distortion of evidence or data that arises from the way that the data are collected.
- Stereotyping — expecting a member of a group to have certain characteristics without having actual information about that individual.
- Subadditivity effect — the tendency to judge probability of the whole to be less than the probabilities of the parts.
- Subjective validation — perception that something is true if a subject's belief demands it to be true. Also assigns perceived connections between coincidences.
- Telescoping effect — the effect that recent events appear to have occurred more remotely and remote events appear to have occurred more recently.
- Texas sharpshooter fallacy — the fallacy of selecting or adjusting a hypothesis after the data is collected, making it impossible to test the hypothesis fairly. Refers to the concept of firing shots at a barn door, drawing a circle around the best group, and declaring that to be the target.

4.0 DEVELOPING INTELLIGENCE ISSUE STATEMENTS

...you cannot gather information meaningfully unless you have understood the problem but...you cannot understand the problem without information about it...

— Rittel⁷⁰

4.1 Introduction

Would you be concerned if a doctor asked you the reason for your current appointment and then began treatment without asking you any additional questions? Suppose you commissioned an architect to create plans for a new house. Would you be nervous if the architect instructed your builder to begin construction before you had a chance to talk to the architect about what you wanted? In real life, neither professional would proceed without interaction with the patient or client early in the process. The goal of the interaction is to develop a shared representation of the issue at hand before the professional applies his or her professional knowledge. Arriving at a shared representation may be a messy and circular process, but expert practitioners would rarely, if ever, skip this step.

Intelligence analysis also has a “getting started” period. This getting started period can occur in several ways: (1) when you are assigned to a new Analytic Area of Responsibility (AOR) by your organization, i.e., an *AOR issue*; (2) when a question or issue is initiated by you for analysis, i.e., a *self-initiated issue*; or (3) when someone else initiates a question for you to address, i.e., a *external issue*. In the guidance and examples that follow, we will address these three types of issues.

We recommend that you engage in thorough questioning and examination of the issue for all types of issues. For example, if others within your or another intelligence organization initiate, then creating a shared representation of the issue with them is important. They are the customer, and you can use the processes described in the following to attain a shared representation of the issue. You can also use developing your issue statement as a means to identify prospective customers that are not in intelligence organizations. Sound professional practice suggests that the intelligence analyst have a thorough understanding of any issue, as well as a shared representation of the issue with any actual or prospective customers, just as a doctor or architect would with their clients.

The intelligence analysts we consulted to write the FAC offered this rule of thumb about intelligence questions and issues: *the stated issue is not always the issue*. Your actual or prospective customer may be very perceptive, but his or her view of the issue is unlikely to be comprehensive in terms of understanding the issue. It’s the goal of this FAC section to provide you with a process and guides so that you can effectively determine what the real issues are behind the intelligence issues that you are asked to address or that you ask yourself.

In the FAC, we refer to this thorough, shared representation as an *intelligence issue statement*. We refer to the process used to explore an intelligence area or question as developing the intelligence issue statement.

⁷⁰ Rittel, H.W.J., Grant, D.P. & Protzen, J. (1984). “Second-generation Design Methods” in *Developments in Design Methodology*, ed. N. Cross, Wiley, New York, NY, pp. 321.

Who is a customer?

In the FAC, the intended audience for any of the three types of intelligence issues is referred to as the customer. For example, with an AOR issue, one intended audience is your management; you want to create a shared representation with them about the scope of your analytic responsibilities. In addition, those who will eventually use the intelligence you produce to accomplish their missions are customers for your AOR and should be identified as part of the intelligence issue process. For a self-initiated issue, you want to identify those that can use the intelligence assessment that you will eventually produce. These customers may be inside or outside of intelligence organizations. For external issues, the customer is the person or organization that submitted the question or issue to you for analysis.

What is the result of developing an intelligence issue statement?

Developing an intelligence issue statement as described in this FAC section is designed to create a clear, succinct statement that captures the essence of the intelligence issue. The intelligence issue statement is a reflection of how the issue is understood by both the customer and the analyst. It contributes to a satisfactory outcome of the analysis activity.

What are the benefits of exploring an issue before I begin any other intelligence analysis activities?

How you understand an issue affects all the other decisions you make in planning, research, and analysis. For example, it determines the information you will seek, those you will collaborate with, and the areas where you'll focus your analytic effort. The better your understanding, the more effective you'll be as you do your analysis activities.

Developing an intelligence issue statement helps you establish a better relationship with customers:

- Working to understand a customer's question demonstrates your interest in his or her goals, a willingness to help customers achieve those goals, and your desire for a collaborative relationship
- The guides can help you structure your interaction with the customer thereby creating a more focused and professional discussion
- The process results in a better understanding of the intended outcome of the intelligence effort, which helps you manage both customer expectations and your analysis

You may save time in the long run. Studies of similar kinds of upfront work in related disciplines show huge payoffs for taking the time to understand the customer's needs. For example, each hour invested in understanding customer's needs in software development has been estimated to save anywhere from 30-200 hours of development time once coding has begun. Similar studies have not been done for intelligence analysis, but it is not too great a leap to see that a well-developed intelligence issue statement can prevent wasted intelligence resources and effort.

Even if you're experienced, the guides in this section can help you corroborate your work and assure that key issues and deliverables have been appropriately considered by both you and the customer.

What are the benefits for the customer?

The primary benefit to customers is that thoughtfully and thoroughly exploring a question or issue the customer is interested in increases the probability that the assessment provided will be relevant to customers' issues and concerns. Exploring an issue with customer participation provides heightened awareness of an issue and its related considerations. If the intelligence analysis effort is unsatisfactory, an explicit issue statement is a starting point for re-interpretation of the issue or for discussion about how the issue has evolved. Finally, the intelligence issue statement created as a result of the process can serve as an agreement between customer and analyst. The existence of the intelligence issue statement helps all parties manage their expectations regarding the intelligence effort.

How can I benefit from developing an intelligence issue statement?

Developing an intelligence issue statement helps you get oriented to the intelligence issue right away. The guides discussed in this section provide a starting point so that you do not have to begin from scratch each time you receive or initiate an intelligence issue. You may have to add questions to the guides we supply to you, but you will at least have a basic set of questions developed by experienced intelligence analysts to help you begin. Most importantly, using a consistent process for developing an issue statement increases the probability of eventual customer satisfaction, resulting in a customer who values your work. It also increases the probability that you'll do a focused, thorough analysis.

What is the relationship between developing an intelligence issue statement and other essential elements of the intelligence analysis process?

Euripides once said: "A bad beginning makes a bad ending". The more completely you understand the issue, the better your decisions will be throughout your analysis. As covered in prior FAC sections, your purpose for the analysis establishes the basis for assigning meaning to information. For example, your intelligence issue statement will shape your development of an information acquisition plan, selection of relevant items during your information searches, and ultimately your assignment of meaning.

What if I am the one posing the question and don't yet have a customer (i.e., a self-initiated issue)?

If you are working on a self-initiated intelligence effort, you still need to explore the question so that you make the best use of your time and resources. You can use the guides provided in this FAC section to ask yourself questions that help set the direction of your inquiry and stimulate your thinking about who the intended audience is for the ultimate product. When you have identified intended audiences, i.e., customers, you can initiate contact to discuss the issue.

What if I'm contributing analysis to another analyst's intelligence issue?

If you are providing contributing analysis to another analyst's intelligence issue, you can also use the guides to ask yourself questions and interact with the other analyst to understand what is needed. Your mutual collaboration on exploring various aspects of the intelligence issue will result in a more focused, thorough analysis for the ultimate customer.

Don't intelligence analysts already have a process for exploring intelligence issues?

We'd be willing to bet lunch that many do, but they are processes that they've developed for their own use. Unfortunately, the intelligence literature is mostly silent on this issue. Many authors acknowledge that some problem exploration and definition has to take place, but they don't provide many details. We searched high and low and couldn't find any how-to guides, even in fields outside of intelligence analysis. Almost all published intelligence literature focuses on answering an intelligence question, not on how the question or issue might best be formulated. Exploring the intelligence issue is a form of analysis itself and one that has been largely ignored in the intelligence analysis literature. We also emphasize capturing your thoughts in writing and developing a written intelligence issue statement because the writing benefits your thinking, as pointed out in the previous material on "Writing as Thinking." Consequently, a written statement may shape your analysis in a substantially different way than if you rely solely on mental exploration of the issue.

4.2 Framing

The intelligence issue statement process we describe in this FAC section relies on a technique known as *framing*. "Framing is the process by which people consciously or unconsciously impose an assumed structure on a situation by selecting relevant features: what is important and what is less important."⁷¹ Framing, in the context of the FAC, is a conscious form of inquiry that helps you develop a structure for the issue. Using framing helps you identify emergent conditions, define the scope of an issue, and develop a greater understanding of an issue's component parts. While you are framing an issue you may also identify underlying components of the issue that had been hidden from view initially.

Framing is also an iterative and collaborative activity. As the intelligence analyst, you lead the framing effort, but framing also relies on your subject matter expertise, information gained from the customer, other analysts, and any research you might conduct while developing the intelligence issue statement to attain a richer understanding of the issue.

By applying the framing technique described in this FAC section, you will have a robust understanding of the issue before you begin your analysis of it. And, the intelligence issue statement you create as a result of framing will be an explicit expression of what the customer needs in order to achieve his or her particular goals.

4.2.1 Framing for Intelligence Analysis

The framing technique created for intelligence analysis relies on two views that can be applied to intelligence issues:

- Customer
- Target

The *customer* view considers aspects of the person or organization who is the intended audience for the intelligence issue. It attempts to provide more understanding of the basic questions "Who is posing the intelligence issue and how are they planning to use the assessment?" or "Who could use the intelligence I'll produce to accomplish their mission?" Inquiry within the customer view attempts to understand the customer's organization, objectives, roles, missions, priorities,

⁷¹ Hey, J. (2005). *Effective Framing in Design*, pp. 2

breadth and detail of results needed, and the circumstances that led to the question. If it is a self-initiated or AOR issue, then you, your analytic colleagues, and your management still need to consider customer interests and how customers might use the results of your work.

A *target* view considers aspects of the subject of interest for your analysis. The target view does not pose questions in an attempt to understand everything there is to know about the target. You will discover what you need to know as you proceed through the FAC and do your analysis. Instead, questions in the target view are an attempt to understand what the actual or prospective *customer needs to know* about the target from the perspective of a customer. This understanding of what the customer needs to know will shape your analysis. It will help you understand what you need to know and the information you'll need to acquire to address the intelligence issue (as described in later sections).

We have organized the FAC so that inquiry within the customer and target views leads to the intelligence issue statement.

JUST A NOTE BEFORE YOU BEGIN TO FRAME A QUESTION

Inquiry within the customer and target views depends on subject matter knowledge. For the purposes of the FAC, we assume that intelligence analysts have at least a conceptual understanding of the subject area under consideration. If you have some background in a subject area, you may want to explore the topic further after you receive the customer's question so that you are prepared to elicit more information from the customer or your colleagues. If you do not have at least a background understanding of the topic, you may want to consider activities that would improve your knowledge of the area under study before you begin to frame the question. If you lack knowledge of the subject matter, you will find it difficult to frame a question effectively.

Why does the approach taken in the FAC emphasize framing and developing an intelligence issue statement?

One interesting finding in our research was the contrast in behavior between novices and experts when presented with a problem to solve. Novices base interpretation of problems and their approach to solving them on the literal features of the initial problem statement. Novices are less likely to notice features and patterns in problem solving settings. Experts, on the other hand, spend time framing and exploring an issue and identifying constraints before they attempt to solve problems. We like to think that an emphasis on developing an issue statement, backed up with the guides to help you frame issues and expand your subject matter knowledge, will allow you to produce the results of an expert, not a novice.

Does the use of framing result in a hypothesis?

No, that is not the objective of framing. The framing technique we discuss is intended to establish the boundaries of an intelligence issue and create a mutual understanding of the intelligence issue. As a result, the direction and focus of your intelligence analysis efforts are as clear as they can be. Framing gives a broad form to an issue and states the goals and objectives of the analysis. At the same time, framing deliberately limits the scope of the inquiry; it tells you where you will **not** go while trying to address the intelligence issue.

4.3 Guides for Framing

Since framing relies on inquiry, asking questions is an important part of understanding the customer and the target. To help you frame an issue we have created framing guides which contain a variety of questions about the customer and the target. The questions on the guides were developed with the help of experienced intelligence analysts and are based on issues that recur in the intelligence literature. The questions are intended to guide research, discussions, and your thinking as you develop an intelligence issue statement.

It is important to understand that the framing guides do not contain every question you might need to ask on an issue. Rather, they are intended to help you capture the core aspects that may need to be addressed. We recognize that each intelligence issue contains unique aspects that need to be addressed; we expect that you will add your own questions to the guides before and as you use them. Both guides will likely require multiple iterations as you refine your thinking after discussions with the customer and other analysts.

The guide for the customer view is in Supplement 1 to this section; the target view guide is in Supplement 2. If the issue is an AOR or self-initiated issue, use the customer view guide to stimulate your thinking about how prospective customers could use the analysis and why it would be important to them. If you are contributing analysis to another analyst, use the customer view guide to understand how that analyst will use your analytic contribution.

Next we'll discuss each of the phases of developing an intelligence issue statement. We'll integrate the concepts and guides we've just discussed into the process and give you other hints for developing an intelligence issue statement. The activities and guides we describe are designed to increase your cognitive engagement with the issue by:

- Following a process for developing an intelligence issue statement
- Using guides for framing, including modifying those guides to suit the current issue
- Aiding you in becoming immersed in the issue
- Stimulating your thinking and learning by writing
- Engaging with the customer and colleagues to corroborate your understanding of the issue

4.4 Developing an Intelligence Issue Statement

The question grows out of an intense interest in a particular problem or theme. The researcher's excitement and curiosity inspire the search; associations multiply as personal experiences bring the core of the problem into focus. As the fullness of the theme emerges, strands and tangents of it may complicate an articulation of a manageable and specific question. Yet this process of allowing all aspects to come into awareness is essential to the eventual formulation of a clear question.⁷²

Developing an issue statement consists of the following activities:

- Receive the initial intelligence issue (i.e., be assigned an external issue or new AOR or develop a self-initiated issue)
- Appraise the issue

⁷² Moustakas, C.E. *Heuristic Research: Design, Methodology, and Applications*, Sage Publications, Newbury Park, CA, 1990, p. 41.

- Conduct research to gain sufficient background for framing the issue
- Write the intelligence issue statement
- Corroborate the intelligence issue statement

4.4.1. Receive the Initial Intelligence Issue

An intelligence issue often comes to the attention of an intelligence analyst in the form of a question. Something new or different in the world is often the source of a question. Whether the question arises during a conversation, arrives through a formal question submission from a customer, or emerges while you are doing research on another topic, the presence of a question is a kickoff event for developing an intelligence issue statement. In the case of an AOR issue, you are assigned to understand a new AOR and there are many questions associated with attaining that understanding.

4.4.2. Appraise the Issue

Before you undertake any activities to frame an issue, you need to consider the issue in a comprehensive way. Appraising the issue consists of two main areas of activity: an assessment of your subject matter knowledge related to the issue and preparing to conduct the research that helps you frame the issue.

To assess your subject matter knowledge, ask yourself the following questions:

Does the issue make sense to you? What do you currently know about the topic? Is it directly related to your area of expertise? Do you need to do more research to understand the issue well enough to accomplish the activities associated with framing it, such as discussing it with customers, other analysts, and management? Do you know anything about the requestor or his or her organization? Have you worked with him or her in the past? Are knowledgeable colleagues available for consultation on the subject areas covered in the intelligence question? Do you need to engage in other activities to explore information concerning the target?

To prepare for the research that helps you frame an issue, you may need to do any or all of the following:

- Review the customer and target guides and add or delete questions as necessary
- Decide who you will need to talk with about the issue
- Note that discussions do not necessarily need to be face-to-face. Contact can be through a variety of interactive approaches
- For external and self-initiated issues, check existing intelligence resources to determine whether the issue has been posed previously. Does existing intelligence address the issue, in whole or in part? For AOR issues, identify what organizations and analysts do analysis on related or contributing AORs.

Hints:

- After you have appraised the issue and modified the customer and target guides, answer the questions on the guides yourself. This helps you think about the issue systematically and may provide more insight into the intelligence issue. As a result, you may revise the guides, change your concept of the question, or decide to

research a little further. In addition, you will have a basis for the discussions with others that will take place in the next phase of developing an intelligence issue statement.

4.4.3. Conduct Research for Framing the Issue

During this phase you will:

- Conduct discussions with actual or prospective customers or other analysts and managers using the framing guides
- Review the results of the discussions
- Enhance the information you obtained during the discussions with background information
- Conduct any other types of research needed to fill in the gaps revealed by work on the framing guides or discussions
- Conduct follow up activities such as follow-on discussions or calls if needed

4.4.4. Write the Intelligence Issue Statement

The written intelligence issue statement provides direction for the intelligence effort. It reflects your understanding of what you intend to explore in the intelligence effort and why the effort is being undertaken. In addition, the process of writing the intelligence issue statement provides an opportunity for you to deepen your understanding of the issue and the customer. Constructing an intelligence issue statement synthesizes the knowledge you gained while framing the issue from the customer and target views.

We recommend that an intelligence issue statement contain the following:

- A Goals and Objectives section describing what the intelligence effort is to accomplish. It should identify the:
 - Actual or prospective customers interested in the effort, by name, organization, or function
 - Current or future events driving the intelligence issue
 - Target of the effort
 - What the customer intends to do with the results of the intelligence effort or how a prospective customer might use the analysis to support their mission
- A Focus section describing what the customer needs to know about the target. It defines the scope of the intelligence effort by describing those aspects that the customer is interested in knowing and the coverage of the target.
- A Special Considerations section with notes, guidelines, or other factors that might be related to the intelligence issue statement. This section may also be used to elaborate those issues that will **not** be considered in this intelligence effort.
- A Bibliography of existing intelligence products that are related to the issue. The bibliography should include those products that seem to address some or all aspects of the intelligence issue. The purpose of this bibliography is to promote discussion with the customer regarding existing products and ensure you are aware of related

intelligence production. It should be marked as a preliminary or working body of products, not as a final reference list.

An example of using the customer and target view guides to develop an intelligence issue statement is shown in subsection 4.15 “The Case of General Alpha – Facing Insurgency.”

Hints:

- Write the intelligence issue statement from the perspective of the customer.
- Be as explicit as possible without overly constraining the issue.
- Consider an evolution in your understanding of the issue a positive development. Both framing the intelligence issue and writing the intelligence issue statement are activities that are designed to improve your understanding of an issue. You should expect to readdress the issue as your understanding evolves.

4.4.5. Corroborating the Intelligence Issue Statement

After you have written the intelligence issue statement, it is important to corroborate it. Corroboration is intended to give you, the customer (if applicable), and your colleagues the opportunity to confirm that the way you have framed the question matches the objectives to be accomplished. Corroboration is also another means of solidifying your understanding of the issue.

Corroboration consists of a discussion, either in-person or electronically, of the intelligence issue statement. This is a deliberate opportunity for you to discuss any comments or questions and achieve a shared understanding of the intelligence issue statement before you proceed with your analysis.

If it is an external issue, the customer is your primary resource for corroborating your intelligence issue statement. To prepare the customer (or others) for their role in corroborating the intelligence issue statement, you should:

- Select the medium you intend to use for the corroboration. Will the corroboration occur face-to-face, through email, through video conferencing, or some other medium?
- Make the appropriate arrangements and appointments for the medium selected in preparation for the discussion of the intelligence issue statement.
- Be sure to make the purpose of the meeting clear when you arrange the discussion of the intelligence issue statement.
- Send the intelligence issue statement to the customer or others in advance of the discussion session.
- Conduct the discussion about the intelligence issue statement.
- Make any changes needed to the intelligence issue statement.

Hints:

- If intelligence products exist that seem to be relevant to the issue, review these as part of the discussion of the intelligence issue statement. Obtain feedback regarding the existing intelligence products. If the customer or others think the existing intelligence does not fully address the issue, try to determine how the existing

products are inadequate: is it the product's scope, detail, content, or some other issue? The feedback on existing intelligence products may provide you with important insights regarding the current effort.

- To make corroboration easier to understand, we discuss it in this FAC section as if you would conduct a review of the intelligence issue statement only one time. We would like to emphasize that it is likely that ***you will repeat the corroboration more than once*** in order to reach a satisfactory agreement regarding the intelligence issue statement. Your initial corroboration discussions will likely result in new insights, direction, or dimensions for study. You should repeat the corroboration activities until both you and the customer or other colleagues are satisfied with the intelligence issue statement.

What can you do if a customer cannot participate in corroborating the statement you created? You may be able to arrange a meeting with an intermediary for the customer, such as the customer's staff, colleagues with first-hand knowledge of the customer, or members of intelligence organizations that represent the customer. For example, if your customer is the Air Force Chief of Staff, you may need to meet with members of the AF/A2 staff, those in the Air Force Intelligence Analysis Agency (AFIAA), or a special advisor to the Chief. The process described below for identifying reviewers for AOR or self-initiated issues may also be useful to you if the customer is not available.

If it is an AOR or self-initiated issue, you still need to corroborate the intelligence issue statement. For AOR issue and self-initiated issues, instead of working with an actual customer to review the intelligence issue statement, you can consider selecting reviewers from your organization. Reviewers should be knowledgeable about the target under consideration and willing to serve as "customers" to corroborate the intelligence issue statement you have created. For self-initiated issues you can also discuss it with prospective customers that you have identified. If you are contributing analysis to another analyst, you can work with that analyst (and possibly other contributing analysts) to corroborate the intelligence issue statement for your contributing analysis.

A NOTE ABOUT CORROBORATION

One outcome of developing the intelligence issue statement is worthy of special emphasis. Since we recommend that you research existing intelligence products related to the customer's issue, it is possible for external and self-initiated issues that you will retrieve a completed intelligence product that addresses the customer's issue. Be sure to present and discuss existing intelligence during the review of the intelligence issue statement. If, during the review, the customer asserts that the existing intelligence addresses his or her issue, you can consider your work on the intelligence issue complete.

4.5 Developing Intelligence Issue Statements in Real Life

We have discussed the process in a step-by-step sequence to help you understand each of the activities more easily. When you actually put this process into practice, you will likely find yourself looping back through the process several times as you develop the intelligence issue statement. Looping back is completely normal and is most likely a sign that as you learn more about the intelligence question you will refine the intelligence issue statement.

You may also find that you need to refine or re-frame the intelligence issue as you encounter new developments or information in later phases of the intelligence analysis process. Refining the intelligence issue statement as you encounter new information is also completely normal and is a positive sign.

4.6 In Conclusion

By developing intelligence issue statements, you thoroughly consider the intelligence **issue** from the customer and target frame perspectives. Through research, discussions, and your subject matter knowledge, you create a statement of the intelligence issue and corroborate it with the customer who asked the question or with other knowledgeable colleagues.

Once the customer or your colleagues agree with the intelligence issue statement that you've created, you are ready to begin planning the analysis effort. In the next FAC section, we'll discuss how to create an Analysis Plan to prepare for later phases of the analytic effort.

4.7 Using the Supplements and Example

In order to illustrate the concepts we present in this section of the FAC we have provided guides and a sample external issue that uses the guides. Supplements 1, 3, and 5 contain blank Customer View Guides for external, self-initiated, and AOR issues. Supplements 2, 4, and 6 contain blank Target View Guides for external, self-initiated, and AOR issues.

Subsection 4.14 contains an explanation of the sample issue we developed for this section of the FAC and completed Customer and Target View Guides, as well as a completed Intelligence Issue Statement. Please note that we provide an example for an external issue only.

4.8 Supplement 1: Customer View Guide for an External Issue

ITERATION #:

DATE:

INITIAL ISSUE:

Who is the customer (organization, person, or role)?

What is the customer's organizational affiliation? What is the reporting hierarchy for the customer (customer's organization one level up)?

What objective is the customer trying to achieve by posing this issue? What is the problem he or she is trying to solve? How will this effort help the customer fulfill his/her mission? How is the result of the intelligence effort going to be used?

What are the circumstances that led to the request for this intelligence issue to be addressed?

What is the context of the issue in terms of government plans and policies?

Is the result of the intelligence effort intended to support:

- Short-term or long-term effort
- Tactical decision making
- Weapons system acquisition
- Policy formulation
- Support of policy execution
- Provocations to cause other side to act
- Operational
- Planning
 - Long range
 - Strategic
 - Operational
 - Tactical

What is the customer's time frame for the product?

What is the customer's time frame for his or her decision?

What form should the intelligence assessment take?

What is the breadth and detail desired in the result?

4.9 Supplement 2: Target View Guide for an External Issue

ITERATION #:

DATE:

INITIAL ISSUE:

What does the customer want to know about the target, what is their focus, and what are their priorities? Why is the issue an issue? Why is it important to address this issue?

Is the situation of interest to the customer an emerging condition? Is the situation recent, unexpected, new?

Is the issue surrounding the target a “puzzle or a mystery”? Whether the customer wants to know about a puzzle or mystery is important to understand as you engage with the customer.

- A puzzle is knowable, but not yet by us
- A mystery can be known by no one, because it hasn't yet been decided

Consider the following to think about what you know and what is unknown about the customer's primary interests in the target.

- Intentions, Motivations
- Military
- Diplomatic, political, legal
- Economic
- Cultural, religious, sociological, historical
- Information, media, propaganda
- Infrastructure, telecommunications, transportation
- Weather
- Medical
- Criminal
- Governmental structure, plans, policies
- Commercial, Business
- Scientific/technical

What is the **time period** that the customer wants to know about? E.g., historical, current, future (if so, how far in the future)

Is a particular **geography** involved?

Is the political construct of interest to the customer:

- Traditional
- Transnational
- Global
- Nation-state
- Non-state actor

- Single actor
- Multiple actors

Is the customer interested in specific regional and entity dynamics?

Is the customer interested in the relationships this entity might have with other countries or other entities?

If the target is a person, what is of interest to the customer:

- What are the goals of that person?
- Is the study to be a biography?
- Is the objective of the customer to predict the future actions of that person?
- Is the person involved with a particular institution or organization?

Is a specific **technology** part of what the customer wants to know about the issue? Are patents potentially of interest? If so, what aspects of the technology is the customer interested in.

If the target is a **system**, which of the systems' capabilities are of interest to the customer?

If the target is a **process**, what aspects of the process are of interest to the customer?

If the target is an **organization**, what is the organizational form? Is the customer interested in the nature of the political and economic system that the organization works within?

- Non Governmental Organization (NGO)
- Government owned or controlled business
- Private business

4.10 Supplement 3: Customer View Guide for a Self-Initiated Issue

ITERATION #:

DATE:

INITIAL ISSUE:

What are the circumstances that led to you initiating this issue for analysis? Why is it important that this analysis be done?

Who would care that this issue be analyzed? Who is the intended audience of analysis of this issue, i.e., who are the prospective customers (organization, person, or role)?

What is the prospective customer's(s') organizational affiliation? What is the reporting hierarchy for the customer [customer's(s') organization one level up]?

Why would prospective customers care about this issue? How could prospective customers use the assessment that will be produced as a result of this analysis? What objectives could they achieve by knowing this information? What problem could they solve? How would it help the customer fulfill their mission?

What is the context of the issue in terms of government plans and policies?

Is the result of the intelligence effort intended to support:

- Short-term or long-term effort
- Tactical decision making
- Weapons system acquisition
- Policy formulation
- Support of policy execution
- Provocations to cause other side to act
- Operational
- Planning
 - Long range
 - Strategic
 - Operational
 - Tactical

When should the analysis of the issue be done? What is the prospective customer's time frame for the product?

What is the time frame for prospective customers to use?

What form should the intelligence assessment take?

What is the breadth and detail desired in the result?

4.11. Supplement 4: Target View Guide for a Self-Initiated Issue

ITERATION #:

DATE:

INITIAL ISSUE:

What do you want to know about the target, what is your focus, what are your priorities? Why is the issue an issue? Why is it important to address this issue?

Is the situation/issue of interest an emerging condition? Is it recent, unexpected, new?

What would prospective customers want to know about the target, what would be their focus and priorities?

Is the issue surrounding the target a “puzzle or a mystery”? Whether your analysis is on a puzzle or mystery is important to understand as do your analysis and engage with prospective customers.

- A puzzle is knowable, but not yet by us
- A mystery can be known by no one, because it hasn't yet been decided

Consider the following to think about what you know and what is unknown about prospective customers' interests in the target.

- Intentions, Motivations
- Military
- Diplomatic, political, legal
- Economic
- Cultural, religious, sociological, historical
- Information, media, propaganda
- Infrastructure, telecommunications, transportation
- Weather
- Medical
- Criminal
- Governmental structure, plans, policies
- Commercial, Business
- Scientific/technical

What is the **time period** that you want to know about? What time frames would be of interest to prospective customers? E.g., historical, current, future (if so, how far in the future)

Is a particular **geography** involved?

Is the political construct of interest:

- Traditional
- Transnational
- Global
- Nation-state

- Non-state actor
- Single actor
- Multiple actors

Are you interested in specific regional and entity dynamics? What would prospective customers be interested in?

Are you interested in the relationships this entity might have with other countries or other entities? What relationships would customers be interest in?

If the target is a person, what is of interest to you and prospective customers:

- What are the goals of that person?
- Is the study to be a biography?
- Is the objective of the customer to predict the future actions of that person?
- Is the person involved with a particular institution or organization?

Is a specific **technology** part of what you and prospective customers want to know about the issue? Are patents potentially of interest? If so, what aspects of the technology is the customer interested in.

If the target is a **system**, which of the systems' capabilities are of interest to you and prospective customers?

If the target is a **process**, what aspects of the process are of interest to you and prospective customers?

If the target is an **organization**, what is the organizational form? Is the nature of the political and economic system that the organization works within of interest to you and prospective customers?

- NGO
- Government owned or controlled business
- Private business

4.12 Supplement 5: Customer View Guide for an AOR Issue

ITERATION #:

DATE:

INITIAL ISSUE:

What is the proposed scope of the analysis for the AOR to which you've been assigned? Why is it important that this analysis be done?

What questions do you have about the scope of the AOR?

What would understanding of this AOR contribute to the knowledge of the intelligence community and its ability to support customers?

Who would care that this AOR be analyzed? Who is the intended audience of analysis of the AOR, i.e., who are the prospective customers (organization, person, or role)?

What are the prospective customers' organizational affiliations?

Why would prospective customers care about this AOR? How could prospective customers use the assessment that will be produced as a result of this analysis? What objectives could they achieve by knowing this information? What problems could they solve? How would it help customers fulfill their missions?

How do the interests of various prospective customers vary?

What is the context of the issue in terms of government plans and policies?

Is the result of analyzing this AOR intended to support:

- Short-term or long-term effort
- Tactical decision making
- Weapons system acquisition
- Policy formulation
- Support of policy execution
- Provocations to cause other side to act
- Operational
- Planning
 - Long range
 - Strategic
 - Operational
 - Tactical

When should the analysis of the AOR be done?

What form should intelligence assessments for this AOR take?

Typically what is the breadth and detail desired in assessments for the AOR?

4.13 Supplement 6: Target View Guide for an AOR Issue

ITERATION #:

DATE:

INITIAL ISSUE:

What do you want to know about the AOR, what is your focus, what are your priorities? Why is it important to address this AOR?

What situation/issue in the AOR are emerging conditions, recent, unexpected, new? What aspects seem relatively static?

What would prospective customers want to know about the target, i.e., the AOR, what would be their focus and priorities?

What are the “puzzles or a mysteries” associated with the AOR? Whether your analysis is on a puzzle or mystery is important to understand as do your analysis and engage with prospective customers.

- A puzzle is knowable, but not yet by us
- A mystery can be known by no one, because it hasn't yet been decided

Consider the following to think about what you know and what is unknown about prospective customers' interests in the target, i.e., the AOR.

- Intentions, Motivations
- Military
- Diplomatic, political, legal
- Economic
- Cultural, religious, sociological, historical
- Information, media, propaganda
- Infrastructure, telecommunications, transportation
- Weather
- Medical
- Criminal
- Governmental structure, plans, policies
- Commercial, Business
- Scientific/technical

What is the **time period** that you want to know about? What time frames would be of interest to prospective customers? E.g., historical, current, future (if so, how far in the future)

Is a particular **geography** involved?

Is the political construct of interest:

- Traditional

- Transnational
- Global
- Nation-state
- Non-state actor
- Single actor
- Multiple actors

Are you interested in specific regional and entity dynamics? What would prospective customers be interested in?

Are you interested in the relationships this entity might have with other countries or other entities? What relationships would customers be interest in?

If the target is a person, what is of interest to you and prospective customers:

- What are the goals of that person?
- Is the study to be a biography?
- Is the objective of the customer to predict the future actions of that person?
- Is the person involved with a particular institution or organization?

Is a specific **technology** part of what you and prospective customers want to know about the issue? Are patents potentially of interest? If so, what aspects of the technology is the customer interested in.

If the target is a **system**, which of the systems' capabilities are of interest to you and prospective customers?

If the target is a **process**, what aspects of the process are of interest to you and prospective customers?

If the target is an **organization**, what is the organizational form? Is the nature of the political and economic system that the organization works within of interest to you and prospective customers?

- NGO
- Government owned or controlled business
- Private business

4.14 Example Using an External Issue: Introduction

This example illustrates two iterations on an issue received from a customer, an external issue. For this example, what you know is what is in subsection 4.14.6 “Case Study #1: The Case of General Alpha: Facing Insurgency?” This case study was created by Frank J. Hughes and David A. Schum as part of the instructional materials for a course at the Joint Military Intelligence College (JMIC).⁷³

The same exploration should be done for AOR and self-initiated issues. Iteration 1 includes the customer question as received, what you know *before any interaction with the customer* about the customer and the target, and unknowns about the customer and what the customer wants to know about the target. It results in questions you develop to research or ask the customer or other colleagues. For AOR and self-initiated issues, you will need to ask yourself the questions as they relate to prospective customers (see Customer and Target View Guides for AOR and self-initiated issues).

Iteration 2 incorporates information obtained from the customer, as well as the results of your research during and after Iteration 1. In this example, Iteration 2 is sufficient to develop the intelligence issue statement that you’ll use to begin your analysis. This is a simplified example, with only two iterations. In many cases, it will require many more iterations to arrive at the point where analysis can proceed based on the intelligence issue statement. Subsequent iterations will reflect your evolving understanding of the issue, with the last iteration representing the issue that you will use to proceed with your analysis.

How you represent the information in the customer and target views is up to you. Consequently, no consistent format is used in the example. **But, you should deliberately explore what is known and what is unknown.** The unknowns will be the basis for you doing some initial research to prepare yourself to talk to the customer or other colleagues. The unknowns will also form the basis for questions you can use to discuss the issue with the customer and/or colleagues.

You will likely find that the questions, and even the customer and target views, are highly interdependent for many issues. Stimulating your thinking and getting your thoughts down is what’s important, not exactly where a given piece of information should be placed.

In addition to adding questions, you may also want to reorder and/or regroup questions based on the nature of the issue and how you think about it to facilitate your consideration of the topics.

⁷³ Hughes, F.J. and Schum, D. A. “The Art and Science of the Process of Intelligence Analysis. Case Study #1 (The Case of General Alpha: Facing Insurgency?). Analysis.” 2006.

4.14.1. Customer View Guide – External Issue – Iteration 1

*“aspects of the person or organization who is the intended audience for the intelligence issue”
“Who is posing the intelligence issue and how are they planning to use the assessment?”
(“Developing Intelligence Issue Statements”)*

ITERATION #: 1

DATE: 21 May 09

INITIAL ISSUE: The Commander in Chief (CINC) is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.

Who is the customer (organization, person, or role)?

Known: XXXCOM/J2

Unknowns: None

What is the customer’s organizational affiliation? What is the reporting hierarchy for the customer (customer’s organization one level up)?

Known: XXXCOM/J2 (part of XXX Command)

Known: J2 is the intelligence organization that works for the CINC. J2 reports directly to the CINC.

Unknown: Does the CINC report directly to the Secretary of Defense (SECDEF)? (research)

What objective is the customer trying to achieve by posing this issue? What is the problem he or she is trying to solve? How will this effort help the customer fulfill his/her mission? How is the result of the intelligence effort going to be used?

Knowns: The stated objective is that the customer has been asked by the CINC to “assess the likeliness that the insurgent group will overthrow General Alpha.” The J2’s role is to provide intelligence to support the CINC.

Unknown: the underlying objective of the CINC. Talk with the customer to see what the underlying objective is. Is it to advise on potential US assistance to insurgents and/or to prepare US forces for various types of actions?

Other unknowns to discuss with the customer:

- Since the J2 must address this and sent tasking to our organization, does the J2 want our organizations’ independent assessment of the likelihood of overthrowing General Alpha? Is the J2 doing their own assessment and asking for

our view? Or is J2 looking for a community assessment of the likelihood? Who else in the community is looking at this issue?

- What sorts of decisions is the CINC considering, e.g., possible preparatory action should it appear likely that Gen Alpha will be overthrown? Assistance to insurgents or other countries' actions? Are they considering consequences if Gen Alpha is not overthrown?
- Or, is the CINC just curious about what's going on and the issue isn't related to ongoing planning for action? Are there other reasons for the question?
- How does the J2 plan to advise the CINC? Will they want analysts to provide briefings directly at some point? Will the J2 assimilate the information and provide?

What are the circumstances that led to the request for the intelligence issue to be addressed?

Known: Information from X and Y (opposition leaders) to Central Intelligence Agency (CIA) operatives that stage was set for an insurgent operation against Gen Alpha sometime in the next month.

Unknown: other policy considerations and potential planning for U.S. action. See below. Discuss with customer.

What is the context of the issue in terms of government plans and policies?

Known: The insurgency wants the US to assist them with military and other aid. If the US makes a decision to do this, the US must prepare. Non-combatant evacuation or humanitarian support may also be needed.

Unknowns: existing US policies and plans relative to Country Orange. Do we have a policy to intervene in the case of overthrow? Do we have plans in place for such actions? Is the issue related to a need to update such plans? Is non-combatant evacuation or humanitarian support being planned? (discuss with the customer)

Is the result of the intelligence effort intended to support: (discuss identified items with customer)

- Short-term or long-term effort: Question appears to be short-term, but there are long-term implications; may be longer-term if Blues not yet ready
- Tactical decision making: some implications here potentially
- Weapons system acquisition: No
- Policy formulation: implications here potentially
- Support of policy execution: implications here potentially

- Provocations to cause other side to act: possibly
- Operational: yes, potentially
- Planning: yes, potentially most immediate need may be operational and tactical planning, with knowledge of strategic implications
 - Long range
 - Strategic
 - Operational
 - Tactical

What is the customer's time frame for the product?

Known: There is information indicating insurgents may act sometime next month (based on info provided to CIA operatives).

Unknown: the reliability of this information. Do research on the source. Discuss with the customer what they know about the source.

Unknown: when the customer wants the product. Nothing was included on the request. Prior experience tells me the customer probably will want an answer in 1 week or less, maybe immediately. Discuss with the J2 staff and find out how much time we have.

What is the customer's time frame for his or her decision?

Unknown: what the time frame is for the decision or what type of decision is to be made. If the source information is reliable on the insurgents acting sometime next month, the decision must happen quickly. Discuss with the customer.

What form should the intelligence assessment take?

Unknown: Discuss with the customer. Initial thoughts are concise narrative response, perhaps graphics to support text. Include description of possibilities and likelihoods, with conditions and uncertainties relevant to customer made explicit; identify most likely up front. Also discuss whether a briefing is needed and interactive discussions, e.g., depending on who will present the assessment to the CINC.

What is the breadth and detail desired in the result?

Unknown: breadth and detail desired. Discuss with customer. Initial thoughts: Outline major conditions for and against Gen Alpha being overthrown in the next month. Key element is what the insurgents will really do. Supporting information needed is: How credible is the info provided by X & Y? What are the insurgents' capabilities to pull off overthrowing Gen Alpha? How capable is Gen Alpha and his regime of countering the insurgents? Can the insurgents pull off a surprise

attack? Does Gen Alpha have sources within the insurgency? What will be the role of the populace and religious leaders? How will the geography and infrastructure impact operations? Do some initial research to prepare to discuss with customer.

4.14.2. Target View Guide – External Issue – Iteration 1

“Understand what the actual or prospective customer needs to know about the target from the perspective of a customer” (“Developing Intelligence Issue Statements”)

ITERATION #: 1

DATE: 21 May 09

INITIAL ISSUE: The CINC is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.

What does the customer want to know about the target, what is their focus, and what are their priorities? Why is the issue an issue? Why is it important to address this issue?

Knowns: Country Orange is in a region of strategic importance to the US. Its actions have made life unpleasant for bordering Country Green, which is friendly to US interests. It is reported that Gen Alpha may have intentions of extending his dominance to include Country Green (reliability unknown). Country Orange has a small Air Force. Its capabilities are well known by us. The opposition (Blues) to Gen Alpha resides in Country Green and has asked for US assistance in any insurgency. There are implications for both US forces and U.S. strategic goals.

Unknowns: exactly what the customer wants to know, their focus and priorities. Seems they would want to know Gen Alpha's true intentions and the capabilities of Country Orange's small Air Force relative to what the US plans to do. We can provide Orange's capabilities. We know little about the Blues' capabilities, and they will likely need to know that. Do initial research on what we know now about Gen Alpha's and Country Green's intentions; also research Blues' capabilities by reviewing production and talking to the organization responsible for assessing insurgent capabilities. Then discuss with the J2 what is important to them, what they know and their sources. Do they just want to know the answers or do they want us to explain all the conditions associated with what is happening and potential success or failure by the Blues.

Discuss with customer: Are there potentially humanitarian implications (for airlift, support, etc) if Gen Alpha is overthrown?

Is the situation of interest to the customer an emerging condition? Is the situation recent, unexpected, new?

Known: Situation has been in place (dictatorship in unfriendly country, with ruthless actions on populace and unpleasant actions towards US friendly neighbor, Country Green) for about 5 years. The new information from X and Y is that the

stage was set for an insurgent operation against Gen Alpha to be launched sometime next month.

Unknowns: Was this unexpected? What is the extent of Country Green's involvement? Discuss with the customer.

Is the issue surrounding the target a “puzzle or a mystery”? Whether the customer wants to know about a puzzle or mystery is important to understand as you engage with the customer. Discuss the information added below with the customer.

- A puzzle is knowable, but not yet by us: If the info from X and Y is reliable and/or insurgents have decided what to do, then it is a puzzle, knowable, but not yet by us. Discuss with the customer: the importance of them knowing the reliability of the information; do initial research to understand what it will take to assess this reliability. Another important thing for the customer to know, which is unknown is: Country Green's role...have they decided what to do or not?
- A mystery can be known by no one, because it hasn't yet been decided: There is a possibility though that the info from X and Y is not reliable, and perhaps no stage has been set for an insurgency. That is, no decision has been made to launch the insurgency sometime next month. The insurgency leaders may have not yet decided what to do, then it is a mystery.

Consider the following to think about what you know and what is unknown about the customer's primary interests in the target. XXXCOM is a military organization but, given their mission, their need to answer this question may have diplomatic, political, economic, social (humanitarian), information, etc dimensions. Plus there are many other things on the list that they will be interested in such as infrastructure. Areas that I know would be of interest to the customer are applicable are marked below. Talk to customer and redo when answers are available to questions on the customer view guide and this guide.

- Intentions, Motivations XX
- Military XX
- Diplomatic, political, legal
- Economic
- Cultural, religious, sociological, historical
- Information, media, propaganda
- Infrastructure, telecommunications, transportation
- Weather

- Medical
- Criminal
- Governmental structure, plans, policies
- Commercial, Business
- Scientific/technical

What is the **time period** that the customer wants to know about? E.g., historical, current, future (if so, how far in the future)

Known: Initial question deals with next month. But that will raise more long-term questions depending on what is assessed about next month and associated capabilities, intentions, etc., plus what are the strategic implications.

Unknown: time period the customer wants addressed in the analysis we give them. (discuss with customer)

Is a particular **geography** involved? *yes*

Known: Country Orange includes remote rural areas and two urban centers. Country Green's geography is known.

Unknowns: Blues' primary area of operations. Seems customer would want to know, discuss with them.

Is the political construct of interest to the customer: (Knowns and unknowns are marked)

- Traditional - *yes, Country Orange and Country Green*
- Transnational - *yes, both Orange and Green involved*
- Global - *Unknown, may be of strategic importance to others—does the customer want to know this?*
- Nation-state – *yes, Orange and Green*
- Non-state actor - *yes, insurgency*
- Single actor - *no*
- Multiple actors - *yes, insurgency, Orange, Green. Unknown: are others in the region involved—is this important to the customer? Discuss.*

Is the customer interested in specific regional and entity dynamics?

Known: Relationship between Country Orange and Country Green and the insurgents are all of interest and important for the customer to know.

Unknown: the relationship between X and Gen Alpha's military. Is this of interest to the customer, given their objective? Does the customer want to know the

dynamics of other players in the region and beyond the region for those with strategic interests (like the U.S.). Discuss.

Is the customer interested in the relationships this entity might have with other countries or other entities? [See above](#)

If the target is a person, what is of interest to the customer: [N/A](#)

- What are the goals of that person?
- Is the study to be a biography?
- Is the objective of the customer to predict the future actions of that person?
- Is the person involved with a particular institution or organization?

Is a specific **technology** part of what the customer wants to know about the issue? Are patents potentially of interest? If so, what aspects of the technology is the customer interested in. [N/A](#)

If the target is a **system**, which of the systems' capabilities are of interest to the customer? [N/A](#)

If the target is a **process**, what aspects of the process are of interest to the customer? [N/A](#)

If the target is an **organization**, what is the organizational form? Is the customer interested in the nature of the political and economic system that the organization works within? [N/A](#)

- NGO
- Government owned or controlled business
- Private business

4.14.3. Customer View Guide – External Issue – Iteration 2

“Aspects of the person or organization who is the intended audience for the intelligence issue”

“Who is posing the intelligence issue and how are they planning to use the assessment?”

(“Developing Intelligence Issue Statements”)

Changes from Iteration 1 are highlighted.

ITERATION #: 2

DATE: 23 May 09

INITIAL ISSUE: The CINC is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.

Who is the customer (organization, person, or role)?

Known: XXXCOM/J2

Unknowns: None

What is the customer’s organizational affiliation? What is the reporting hierarchy for the customer (customer’s organization one level up)?

Known: XXXCOM/J2 (part of XXX Command)

Known: J2 is the intelligence organization that works for the CINC. J2 reports directly to the CINC. The CINC reports directly to the SECDEF.

What objective is the customer trying to achieve by position this issue? What is the problem he or she is trying to solve? How will this effort help the customer fulfill his/her mission? How is the result of the intelligence effort going to be used?

Knowns: The stated objective is that the customer has been asked by the CINC to “assess the likeliness that the insurgent group will overthrow General Alpha.” The J2’s role is to provide intelligence to support the CINC.

The underlying objective of the CINC is to advise the SECDEF on potential US assistance to insurgents; and if the decision is made to assist, to put the necessary plans in place. The consequences of the insurgents failing are something the customer wants to know.

The J2 wants our organization’s independent assessment of the likelihood of overthrowing General Alpha. The J2 is asking us and one other intelligence organization (i.e., xxxxx) to do an independent assessment. We have talked with that organization. The J2 then plans to make their own independent assessment and provide alternative views to the CINC. The J2 will brief the CINC. A representative from our organization will be invited to attend.

What are the circumstances that led to the request for this intelligence issue to be addressed?

Known: Information from X and Y (opposition leaders) to CIA operatives that stage was set for an insurgent operation against Gen Alpha sometime in the next month.

See policy and planning circumstances below.

What is the context of the issue in terms of government plans and policies?

Knowns: The insurgency wants the US to assist them with military and other aid. If the US makes a decision to do this, US military forces must prepare to assist the insurgency. In addition, plans and capabilities must be in place for non-combatant evacuation or humanitarian.

US policy is to support opposition to Gen Alpha. The extent of that support will depend on exact circumstances and timing. Some plans are in place and must be further developed based on the support required. The assessment is needed to support the decision being made and, if necessary, further develop those plans.

Is the result of the intelligence effort intended to support:

- Short-term or long-term effort: Question is short-term, consequence of insurgency failure has long-term implications.
- Tactical decision making: Not the customer's focus
- Weapons system acquisition: No
- Policy formulation: No, policy implementation
- Support of policy execution: Yes
- Provocations to cause other side to act: No
- Operational: Operational planning
- Planning: Yes---see above
 - Long range
 - Strategic
 - Operational
 - Tactical

What is the customer's time frame for the product?

Knowns: There is information indicating insurgents may act sometime next month (based on info provided to CIA operatives).

Research indicates the information is highly reliable from a well-vetted source. In addition, there is corroborating information from two other sources, also highly reliable.

The customer wants the product in 7 calendar days.

What is the customer's time frame for his or her decision?

Known: The decision is expected to be made in about 14 calendar days.

What form should the intelligence assessment take?

Known: It is to be a concise narrative assessment, with graphics to support text. An assessment is to be made of the likelihood that the overthrow will occur in the next month, the likelihood of success, and the consequences of failure. Prior to the information being provided to the CINC, we will have interactive discussions with the J2 staff to discuss our assessment.

What is the breadth and detail desired in the result?

Knowns: Outline the evidence that indicates the overthrow will occur in the next month, the evidence that introduces uncertainties into the overthrow occurring in the next month, conditions for success and failure and evidence supporting each, consequences of failure and rational for assessing those consequences. Supporting information should include the insurgents' capabilities and their ability to execute a surprise attack, including the likelihood of cooperation of other elements that will contribute to success or failure.

4.14.4. Target View Guide – External Issue – Iteration 2

“Understand what the actual or prospective customer needs to know about the target from the perspective of a customer” (“Developing Intelligence Issue Statements”)

Changes from Iteration 1 are highlighted.

ITERATION #: 2

DATE: 23 May 09

INITIAL ISSUE: The CINC is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.

What does the customer want to know about the target, what is their focus, and what are their priorities? Why is the issue an issue? Why is it important to address this issue?

Knowns: Country Orange is in a region of strategic importance to the U.S. Its actions have made life unpleasant for bordering Country Green, which is friendly to US interests. It is reported that Gen Alpha may have intentions of extending his dominance to include Country Green (reliability unknown). Country Orange has a small Air Force. Its capabilities are well known by us. The opposition (Blues) to Gen Alpha resides in Country Green and has asked for US assistance in any insurgency. There are implications for both US forces and U.S. strategic goals.

The customer wants to know how likely it is that the overthrow will occur in the next month, the conditions for success and failure, the insurgent's capabilities, including their ability to execute a surprise attack, and the level of cooperation (or lack of) that can be expected from parties internal and external to the country that could contribute to success or failure of the overthrow. The customer will use the information to make plans to assist the insurgency. This will require that we know Blues' capabilities and the capabilities and intentions of those who may either assist (e.g., potentially Country Green, others) or impede the overthrow, including Gen Alpha and his Air Force, and include all in the product.

The customer is also planning for potential non-combatant evacuation and/or humanitarian support. The primary assessment needed to support this planning will be done by another organization, but we should share any information that may be relevant with that organization. However, this will not be focus of our assessment and the resulting product.

Is the situation of interest to the customer an emerging condition? Is the situation recent, unexpected, new?

Known: Situation has been in place (dictatorship in unfriendly country, with ruthless actions on populace and unpleasant actions towards US friendly neighbor, Country Green) for about 5 years. The new information from X and Y is that the

stage was set for an insurgent operation against Gen Alpha to be launched sometime next month.

The customer expected that an insurgent operation would be launched within the next year and some planning had been done. However, the recent information accelerates the customer's need for the assessment to support rapid planning.

Is the issue surrounding the target a “puzzle or a mystery”? Whether the customer wants to know about a puzzle or mystery is important to understand as you engage with the customer.

- A puzzle is knowable, but not yet by us: The info from X and Y has been determined to be reliable, indicating that the insurgents have decided what to do. Consequently, it's a puzzle. However, we must be vigilant for any indications of contradictory information and changes in Blues' plans due to changing circumstances.
- A mystery can be known by no one, because it hasn't yet been decided: We know that the customer doesn't know Country's Green's expected role but wants to know. So we must include understanding it, and the implications, in our analysis. It is not known if Country Green has made a decision and if so what it is. So we don't if that's a puzzle or mystery.

Consider the following to think about what you know and what is unknown about the customer's primary interests in the target. XXXCOM is a military organization but, given their mission, their need to answer this question may have diplomatic, political, economic, social (humanitarian), information, etc dimensions. Plus there are many other things on the list that they will be interested in such as infrastructure. Areas that I know would be of interest to the customer are applicable are marked below.

- Intentions, Motivations XX
- Military XX
- Diplomatic, political, legal
- Economic
- Cultural, religious, sociological, historical
- Information, media, propaganda
- Infrastructure, telecommunications, transportation
- Weather
- Medical
- Criminal
- Governmental structure, plans, policies
- Commercial, Business
- Scientific/technical

What is the **time period** that the customer wants to know about? E.g., historical, current, future (if so, how far in the future)

Known: The customer wants to know what will happen in the next month regarding the overthrow. They also want to know the consequences of failure, specifically focusing on those consequences during the next year.

Is a particular **geography** involved? *yes*

Known: Country Orange includes remote rural areas and two urban centers. Country Green's geography is known. The customer wants details on Blues' primary areas of operations to support the customer's planning.

Is the political construct of interest to the customer: (Knowns and unknowns are marked)

- Traditional - *yes, Country Orange and Country Green*
- Transnational - *yes, both Orange and Green involved*
- Global - *Not a priority of the customer. Will only come into play if there are consequences of the overthrow failing that will manifest themselves in about the next year.*
- Nation-state – *yes, Orange and Green*
- Non-state actor - *yes, insurgency*
- Single actor - *no*
- Multiple actors - *yes, insurgency, Orange, Green, The customer wants to know the roles of others that may assist or impede the overthrow.*

Is the customer interested in specific regional and entity dynamics?

Known: Relationship between Country Orange and Country Green and the insurgents are all of interest and important for the customer to know.

The relationship between X and Gen Alpha's military is of interest to the customer because it may have implications regarding Gen Alpha's ability to impede the overthrow. The customer does want to know the dynamics of other players in the region, as well as those beyond the region with strategic interests, if those dynamics would generate consequences in the next year under the condition that the overthrow failed.

Is the customer interested in the relationships this entity might have with other countries or other entities? *See above*

If the target is a person, what is of interest to the customer: *N/A*

- What are the goals of that person?
- Is the study to be a biography?

- Is the objective of the customer to predict the future actions of that person?
- Is the person involved with a particular institution or organization?

Is a specific **technology** part of what the customer wants to know about the issue? Are patents potentially of interest? If so, what aspects of the technology is the customer interested in. **N/A**

If the target is a **system**, which of the systems' capabilities are of interest to the customer? **N/A**

If the target is a **process**, what aspects of the process are of interest to the customer? **N/A**

If the target is an **organization**, what is the organizational form? Is the customer interested in the nature of the political and economic system that the organization works within? **N/A**

- NGO
- Government owned or controlled business
- Private business

4.14.5. Intelligence Issue Statement – External Issue

“Framing gives a broad form to an issue and states the goals and objectives of the analysis...deliberately limits the scope of the inquiry...tells you where you will not go while trying to address the intelligence issue.”

“provides direction for the intelligence effort...reflects your understanding of what you intend to explore in the intelligence effort and why the effort is being undertaken ...synthesizes the knowledge you gained while framing the issue from the customer and target views.”

INTELLIGENCE ISSUE STATEMENT (24 May 09): Understand the likelihood that the Blues will overthrow Gen Alpha in the next month to support advice, decision making, and planning relative to providing U.S. assistance to the Blues. Understand the conditions for success and failure (with evidence supporting each) and the consequences of failure (including the rationale for assessing those consequences), focusing on the consequences during the next year. The product is due NLT 31 May 09.

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INITIAL ISSUE FROM CUSTOMER: The CINC is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.

#### GOALS AND OBJECTIVES

- Customer(s) requesting the effort, by name, organization, or function; or the same information describing prospective customers: XXXCOM/J2
- Current or future events driving the intelligence issue: Country Orange is in a region of strategic importance to the U.S. Its leader, Gen Alpha, is a dictator unfriendly to the U.S. Highly reliable information indicates that an insurgent group, the Blues, plans to overthrow Gen Alpha sometime during the next month. The Blues have requested U.S. assistance, and it is U.S. policy to support opposition to Gen Alpha.
- Target of the effort: The Blues and their likelihood of success or failure in conjunction with those players and conditions that may help them succeed or impede their efforts.
- What the customer intends to do with the results of the intelligence effort or how a prospective customer might use the analysis to support their mission: The assessment will be given to the CINC to support decision making on whether to support the Blues, the assistance provided, and developing plans to execute those decisions.

FOCUS (What the customer needs to know about the target...scope of the intelligence effort...and coverage of the target): The customer wants to know how likely it is that

the overthrow will occur in the next month, the conditions for success and failure, the insurgents' capabilities, including their ability to execute a surprise attack, and the level of cooperation (or lack of) that can be expected from parties internal and external to the country that could contribute to success or failure of the overthrow. The customer will use the information to make plans to assist the insurgency. This will require that we know Blues' capabilities and the capabilities and intentions of those who may either assist (e.g., potentially Country Green, others) or impede the overthrow, including Gen Alpha and his Air Force, and include all in the product.

**SPECIAL CONSIDERATIONS** ( ...notes, guidelines, or other factors that might be related to the intelligence issue statement. This section may also be used to elaborate those issues that will **not** be considered in this intelligence effort.): The customer is also planning for potential non-combatant evacuation and/or humanitarian support. The primary assessment needed to support this planning will be done by another organization, but we should share any information that may be relevant with that organization. However, this will not be focus of our assessment and the resulting product.

**BIBLIOGRAPHY** (...existing intelligence products that are related to the issue...that seem to address some or all of the intelligence issue under consideration): None answer the issue. There are some supporting products that deal with aspects of Country Orange's Air Force, the Blues, and Country Green.

- Products that address (in part) relevant aspects:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

#### **4.14.6. The Case of General Alpha: Facing Insurgency?**

##### **DEFENSE ATTACHÉ'S BACKGROUND REPORT ON COUNTRY ORANGE**

In a certain part of the world of strategic importance to the U.S., a country named Orange [population around 2.5 million] has, for five years, been in the throes of a dictatorship that has decidedly unfriendly inclinations toward the U.S. We presently have no diplomatic relations with Orange. In addition, this dictatorial government has adopted quite ruthless methods to maintain its hold on the populace of Orange. Further, the ruler in Orange, General Alpha, has made life unpleasant for a bordering country, Green, friendly to U.S. interests, by fomenting repeated border disputes. It seems clear that Gen. Alpha has every intention of extending his dominance to include this bordering country Green. Gen. Alpha's support has come mainly from the military forces in Orange and from individuals in the two major urban areas in Orange who have profited by cooperating with Gen. Alpha. The majority of Orange's population lives in rural areas, many of which are quite remote from the two Orange urban centers, cities A and B. Opposition to Gen. Alpha among the general urban and rural population in Orange has been held in check due to very ruthless measures taken by Gen. Alpha's military against persons Alpha has called "undesirables." Many of these "undesirables" have either been publicly executed or now languish in military prisons. The military in Orange, numbering about 75,000, is controlled exclusively by Gen. Alpha and seems well equipped for ground fighting. In addition, Gen. Alpha has a small air force consisting mainly of propeller-driven aircraft and a few helicopters. Information about events in Orange is generally hard to obtain. International news organizations such as CNN have been barred from entering Orange since Gen. Alpha wrested control of Orange about five years ago. Gen. Alpha's government controls the press, radio, and the single television station that is allowed to broadcast.

Quite recently, an opposition group, named the Blues, has come into existence and is led by two persons who have managed to avoid capture by Gen. Alpha's military. Person X was a high-ranking military leader in country Orange before its government was overthrown by Gen. Alpha. Person Y is a former professor of political science at the only university in Orange and who also held a high-ranking political position in Orange before the government was overthrown. Both X and Y have remained in hiding in a remote region of Orange and have, from time to time, been granted sanctuary in neighboring country Green. When they were last in Green, about a week ago, X and Y told our CIA operatives that the stage was set for an insurgent operation against Gen. Alpha and his ruthless regime in country Orange. Furthermore, they indicated that their insurgency operation would be launched sometime in the next month. Of course they asked for military and other assistance from the U.S.

##### **TASKING**

- You are a member of a team of military capabilities analysts.
- The CINC is concerned about this insurgency and has asked the J2 to assess the likeliness that the insurgent group will overthrow General Alpha.<sup>74</sup>

Customer Organization: XXXCOM/J2<sup>75</sup>

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<sup>74</sup> Hughes, F.J. & Schum, D.A. *The Art and Science of the Process of Intelligence Analysis. Case Study #1 (the Case of General Alpha: Facing Insurgency?). Analysis.* 2006.

<sup>75</sup> Added to the Hughes/Schum Case Study #1 for the purposes of this example.

## 5.0 SETTING A DIRECTION: THE ANALYSIS PLAN

### 5.1 Introduction

Doing effective intelligence analysis requires knowledge of the target's capabilities, motivations, intentions, culture, past behavior, threat perceptions, relationships, and a myriad of other factors. You have probably acquired some of this knowledge while you were creating the intelligence issue statement. How can you weave this knowledge to address the intelligence issue covered by your AOR (*AOR issue*), self-initiated by you (*self-initiated issue*), or posed by a customer (*external issue*)? How should you proceed once you feel you understand the intelligence issue? How can you, as an intelligence analyst, identify the most fruitful direction for further investigation and use your time wisely? We refer to these considerations about the subject matter associated with the intelligence issue as the *substantive areas of analysis*. The substantive areas of analysis are what you need to know to address the intelligence issue.

This FAC section will provide approaches for thinking about and identifying the substantive areas of analysis. In addition, this FAC section will also provide approaches for some practical issues you'll need to address to accomplish your analysis. For example, what resources will you use to address the intelligence issue? What is the schedule you will need to follow in order to meet your own deadlines or deadlines set by the customer? Planning the activities involved in addressing an intelligence issue, whether an AOR issue, a self-initiated issue, or an external issue, is an essential and integral part of the intelligence analysis process. In other areas of endeavor, this planning is often referred to as a project management plan. However, with intelligence analysis there are additional complexities and important differences that are not covered by traditional project planning plans. These will also be discussed in this section.

So, in summary, at this stage of the FAC you apply both knowledge about your area of analytic responsibility and planning techniques in order to address the intelligence issue. How do we integrate these two demands on the intelligence analyst?

We recommend that the information about the substantive areas of your analysis effort, as well as resources, schedules, and other activities, be incorporated into a written document we call the *analysis plan*. The analysis plan describes everything needed to address an intelligence issue: all the areas of intelligence analysis that are necessary, what will be done, what resources are required, who will do the work, and when the work needs to be completed. It describes how the analysis effort will be structured to facilitate the acquisition and analysis of the information needed. The analysis plan aids coordination and communication and provides a basis for you to monitor your progress on the intelligence analysis effort. In addition, the act of creating an analysis plan often forces you to consider aspects of the effort that would escape your attention if you were not engaged in planning.

In this section of the FAC we propose an approach to help you identify and elaborate the substantive areas involved in your analysis effort. These substantive areas are the essential starting point for planning and doing your analysis. We then provide some basic information about creating an analysis plan.

*Where does the creation of the analysis plan fit into the analysis process?*

In the “Introduction” section of the FAC we discussed the intelligence analysis process first described by Sherman Kent.<sup>76</sup> Kent’s process included the following steps:

1. The appearance of a problem requiring the attention of a strategic intelligence staff.
2. Analysis of this problem to discover which facets of it are of actual importance to the U.S. and which of several lines of approach are most likely to be useful to its governmental customers.
3. Collection of data bearing upon the problem as formulated in stage 2. This involves a survey of data already at hand and available in the libraries of documentary materials, and an endeavor to procure new data to fill in gaps.

As Kent described in step 2, when you developed your intelligence issue statement, you began your analysis of the intelligence problem. You identified those facets of the issue that are of importance to your actual or prospective customers. Your analysis of the intelligence issue will continue as you produce the analysis plan. By further exploring and elaborating the substantive knowledge needed to address your intelligence issue statement, you lay the groundwork for step 3, which we refer to as information acquisition in the FAC.

*What are the benefits of setting a direction for an intelligence analysis effort?*

It is important to set the direction of an intelligence analysis effort because:

- (i.e., what you need to know to address the intelligence issue) need to be identified early in the analysis process. All other activities in the intelligence analysis effort flow from this identification, so it is essential that it occur early in the analysis process.
- Knowledge of the substantive areas of analysis is especially important for the acquisition of information necessary to address to the intelligence issue. Identification of what you need to know will guide your information planning and subsequent information acquisition.
- Intelligence analysis often occurs under critical time constraints. Making the most of the resources and time available to you is essential.
- Plans permit you to monitor and adjust your progress during the intelligence analysis effort.
- Creating an analysis plan doesn’t guarantee that your intelligence analysis effort will be problem-free, but planning does decrease the risk of certain kinds of problems.
- An understanding of the effort’s direction provides the basis for guidance to others who may be involved in planning their contributions to the effort. Understanding your direction will aid you in effective collaboration with others during your effort.

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<sup>76</sup> Kent, S. *Strategic Intelligence for American World Policy*, Princeton University Press, Princeton, NJ, 1949, pp. 157-158.

- A description of the activities and the interdependencies involved in an intelligence analysis effort promotes communication between all of the parties (e.g., information providers, other analysts, etc) contributing to the effort.

*Is planning an intelligence analysis effort different than planning for other types of efforts?*

Some aspects of an intelligence analysis effort can be managed using a traditional project management approach. Knowledge of basic project management techniques can help you as you plan for intelligence analysis. Some aspects of an intelligence analysis effort, however, are very different than a traditional project. The crucial difference between an intelligence analysis effort and other projects is that project managers for traditional projects work diligently to make the project's definition and goals measurable, tangible, and verifiable before beginning. For reasons that we will explain later in this section, an intelligence analysis effort does not lend itself well to a definition that concrete. An intelligence analysis effort can contain so many unknowns that planning is more difficult than a traditional project. Our objective in this section is to help you plan effectively even if many aspects of the effort seem intangible.

*Who is the audience for the analysis plan?*

The analysis plan is created by you, for you, and describes the substantive areas and plans for your analysis activities. It is another instance of the FAC's "writing as thinking" emphasis.

**Identifying the knowledge you need** in order to carry out an effective intelligence analysis effort is a major cognitive challenge. As we discussed earlier, creating a written representation is an important part of helping you think more effectively about the intelligence issue and your analysis efforts. The analysis plan is the written representation for this phase of the FAC.

Before we begin discussing the specifics of creating an analysis plan, we need to discuss the preparatory work that will help you plan successfully.

## 5.2 Getting from Here to There

*A project is a temporary endeavor undertaken to create a unique product, service, or result.*<sup>77</sup>

Analysis in your area of responsibility is ongoing. As long as you are assigned to an area, you accumulate knowledge and information, so analysis doesn't have a set beginning and end. When faced with a specific intelligence issue to analyze, you'll certainly use your accumulated knowledge and assembled information to address that particular intelligence issue. In the FAC, however, the analysis effort for addressing this particular issue has a beginning (development of the intelligence issue statement) and end (a product). If it is an AOR issue, the result will be achieving understanding of your AOR and there will be many resulting products for actual or prospective customers. The analysis effort relies on a group of resources assembled to accomplish an outcome relating to the intelligence issue. Considering only these general characteristics, an intelligence analysis effort is similar to a wide variety of other projects such as constructing a building, creating a new drug, or developing a software application.

However, an intelligence analysis effort differs from other classic projects in several important respects. A construction manager who formulates plans for an office building knows, usually from the beginning of the project, what the outcome of the project will be. That is, the result will be an office building that looks and functions quite similarly to the plans developed at the

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<sup>77</sup> Anonymous. *A Guide to the Project Management Body of Knowledge, 3<sup>rd</sup> edition: PMBOK® Guide*. Project Management Institute Inc., Newtown Square, PA, 2004, pp. 5.

beginning of the project. In addition, the approaches to developing a building are well-known and commonly practiced. Finally, it is relatively easy for the construction manager to identify who will participate in the project. The typical construction project relies on a well-understood path to a known outcome with resources that are easily identified.

An intelligence analyst, however, knows that an intelligence issue needs to be addressed, but the exact nature of the outcome of addressing the issue won't be known until the analysis is complete. In the case of an AOR issue, there will be many analyses and resulting products, typically over a long-period of time. Over this period of time, there could be new emerging situations in the AOR that will change your understanding and plans for analysis. An intelligence analysis effort relies on many components and participants that have to be brought together efficiently in order to address the issue. In addition, the activities you'll engage in to create the assessment (or many assessments for AOR issues) may not be as predictable as the approaches used for construction or software development, for example. An intelligence analysis effort may also require resources that are not easily identified during the early stages of the effort but become necessary based on the intermediate results of analysis.

Creating a plan for an intelligence analysis effort can seem daunting because of the uncertainty surrounding the approach, outcome, and the participants in the effort. Some existing project management techniques could be applicable to intelligence analysis, but the fact that project management assumes known outcomes and methods seems to limit its usefulness. How can you decide what resources to use and when to use them if you don't know exactly what the end result of your planning is?

This section of the FAC provides an approach you can use to conquer some of the differences between traditional planning and planning for intelligence analysis. We propose a method that you can use to aid you in identifying and understanding of the substantive areas of analysis that you will need to address for the effort. By exploring what you need to know to address the intelligence issue, including how potential events associated with your target may unfold, you can identify the substantive areas associated with your effort more specifically. Once these substantive areas are identified, you can assess how to approach each substantive area, including who will need to contribute to your efforts. As your analysis effort continues you will, of course, augment and modify these substantive areas and adapt your plans and activities as needed.

### **5.3 Building the Analysis Plan**

*In the field of strategic research and intelligence, no analyst can afford to assume that he or she already knows everything there is to know. Nor are assessment projects likely to be able to be completed without some considerable investment in time and other resources. In this arena, there is simply too much effort involved to risk taking anything but the most careful approach possible. This means committing yourself not only to careful implementation and analysis throughout the project, but also to careful and comprehensive planning at the outset.*<sup>78</sup>

Developing an analysis plan consists of the following activities:

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<sup>78</sup>McDowell, D. *Strategic Intelligence: a Handbook for Practitioners, Managers and Users*. Istana Enterprises Inc., Pambula NSW Australia, 1998, pp. 91.



- Identify the substantive areas of analysis. You may find it helpful to identify which areas are already known and which areas are unknowns and how familiar and current you are with those areas you know something about.
- List the major milestones or key events for the analysis effort
- List the activities that must be completed, by you and others, in order to address the intelligence issue
- Identify any other resources needed (e.g. contractual dollars), if applicable
- Develop an overall schedule for the effort, based on your needs or the needs of the customer
- Write the analysis plan

*I think I'm going to need an example to understand this...*

To make these concepts easier to understand, we're going to use an example to discuss how to create an analysis plan.

### **5.3.1. Identify the Substantive Areas of Analysis**

In order to illustrate how you develop the substantive areas of intelligence analysis for an issue we use "The Case of General Alpha: Facing Insurgency" as presented in subsection 3.14 of the "Developing Intelligence Issue Statements" section of the FAC. It is easier to follow the example for section 4 if you keep the samples from section 3 handy – you will need to refer to the intelligence issue statement, customer view, and target view guides developed for the example as we discuss the analysis plan.

#### **NOTE**

We have designed the example so that it has enough detail that you can understand the steps involved in creating the analysis plan, but we did limit some aspects of it so that it would work well as a concise example.

The intelligence issue statement created for the case study is:

Understand the likelihood that the Blues will overthrow General Alpha in the next month to support advice, decision making, and planning relative to providing U.S. assistance to the Blues. Understand the conditions for success and failure (with evidence supporting each) and the consequences of failure (including the rationale for assessing those consequences), focusing on the consequences during the next year.

In order to create the analysis plan you need to consider a wide range of possibilities for what you need to know to address the intelligence issue. Considering how future events may unfold can help you identify what you need to know. It will help you determine the substantive areas of analysis you will need to pursue in order to address this issue.

*How do I begin?*

Most intelligence issues relate to the status of developments in the future that are caused by a series of interrelated events stemming from human actions. "Will an earthquake occur?" is not an intelligence issue but "Will Country X invade Country Y?" is. A simple yes or no assessment is

inadequate since you must establish the status of the developments as they exist. Thus your analysis effort, and the analysis plan developed to accomplish that analysis, must be *target-oriented*, not focused on what your final assessment will be. At this point, you want to avoid trying to think about the end result of your analysis. The fact that you don't know the end result of the analysis is not an impediment to doing the plan.

The future status of the intelligence target, regardless of what it is, is the result of an accumulation of related events, decisions, and accomplishments by those associated with the target. You begin your work on the analysis plan by thinking about and identifying the possible sequences of these interactions and what you need to know to understand them. By exploring how potential events associated with your target may unfold, you can identify more specifically the substantive areas that you will need to address, including the areas where you may need analytic contributions from others. Exploring potential events is something you do solely for the purpose of planning and guiding your subsequent analysis. This exploration helps you initially scope your effort. As you acquire and evaluate information, you will no doubt find other areas to explore and other potential events to examine, all of which will shape your thinking regarding the intelligence issue.

In order to help your thinking about the possible sequences of interactions associated with the intelligence issue, consider the following factors:

- Dynamics and interactions: Includes the interaction of the *actors*, *artifacts*, and *environment* over a given *time frame*; what decisions would have to be made, by whom, and how those decisions might be made; how the situation might evolve; and what might take place.
  - *Actors* are the person or persons with goals and objectives related to the intelligence issue. Actors may also be organizations of all types, formal and informal, including governmental and non-governmental organizations.
  - *Artifacts* are the inanimate objects central to the intelligence issue. These could include equipment, facilities, locations, and nomenclature associated with these artifacts.
  - *Environment* is the setting for the action or the situation being considered.
  - *Time frame* is the duration or period of time relevant to the intelligence issue. It can include both current and past events, as well as the future time frame you are considering.

*How would an intelligence analyst use these factors to develop the substantive areas of analysis?*

The intelligence issue statement developed for the case study has an implicit customer assumption: the Blues will attempt to overthrow General Alpha. While your analysis may ultimately indicate that the Blues will not attempt overthrow, first consider what would be the sequences of events that will shape a Blue decision to attack General Alpha? From a Blue perspective, what would they consider before making a decision, what do you need to know about?

- The status of the Blues' combat capabilities. Some considerations would be potential improvements, in the short-term, through acquisition of more arms and training and by recruiting more personnel.

- An assessment by the Blues of the combat effectiveness of General Alpha's forces. Some considerations in this assessment would include equipment, training, recent performances, deployment, and loyalty of the troops.
- The state of the internal political environment in Orange. Some considerations are the popularity of General Alpha, the standard of living, the degree the citizens are oppressed, the effects of any efforts to change General Alpha's popularity, and other social and economic conditions within the country.
- The state of the external political environment. Some considerations are General Alpha's relationship with neighboring countries and the degree of active support provided to General Alpha.
- The possibility of attempting to measure current conditions by conducting small scale conflicts with General Alpha's forces and then evaluating the results.
- The acquisition of financial and other support for the operation of the Blue forces.
- Any other factors that would inform the Blues about their ability to succeed.

You must consider a second aspect of this intelligence issue while developing the substantive areas of analysis. That is, will the Blue forces succeed if they decide to attack? If the Blues forces do take action against General Alpha, they would have an expectation of success. The Blues may or may not have based this expectation of success on a realistic consideration of the factors involved in attacking. In your assessment of whether or not the Blues will succeed if they attack, the following are examples of some events you would consider:

- The deployment of General Alpha's forces and the General's ability to move the forces.
- The history of how General Alpha originally seized power in terms of leadership, tactics, and his reaction to adverse information.
- The existence of support from leaders of other countries.

For this intelligence issue statement, the bullets in the **blue different font** provide examples of the substantive areas associated with the intelligence issue. These will be listed in your analysis plan, along with the information described later in this section. These bullets describe dynamics and interactions, which include actors, the environment, artifacts, and the time frame relevant to the issue.

In addition to considering all the factors associated with Blues' decision to attack, you would also consider the sequences of decisions and events associated with Gen Alpha's possible preventative actions and reactions to attack, as well as those of other countries (e.g. Country

Green). These are beyond the scope of this example, but would they would be considered during an actual intelligence analysis effort.

To continue the example, the acquisition and analysis of information about the above events and factors could lead you to produce many different assessments. Some of these might include:

- The Blues may decide not to attack General Alpha's forces
- The Blues may decide on a different approach to overthrow General Alpha
- The Blues may attack and achieve an easy and quick victory
- The Blues may be decisively defeated
- General Alpha may lose total control but retain enough influence so a prolonged civil war will ensue

The result will determine what the after effects will be. The intelligence issue statement also requires your assessment of the consequences of failure if the Blues do attack. Since all the events associated with the after effects have yet to occur, little direct information exists so an assessment of what will happen has to be based on knowledge of what has happened in similar circumstances and the past behavior of the Blue leaders and General Alpha. Substantive areas associated with similar circumstances and past Blue and General Alpha behavior would also be listed in your analysis plan.

In summary, by thinking about the dynamics and interactions (including actors, artifacts, environments, and time frames) associated with the intelligence issue, you can begin to identify substantive areas needed to address the intelligence. How then will you use those substantive areas of analysis to develop the analysis plan?

### **5.3.2. List the Major Milestones for the Analysis Effort**

When you used the Customer View Guide to develop your intelligence issue statement, at least two of the questions on the guide were intended to help you collect information about the customer's time frames for both the intelligence product and the decision to be based on the product. For self-initiated issues, you may have an idea of when your project will be needed by prospective customers or when it has to be completed so that you can work on other efforts. AOR issues will be continuing, but within your AOR issue there may already be self-initiated issues you have identified to address within a certain time period or incoming external issues that require attention by a given date. These dates can be included in your AOR issue analysis plan.

All of these dates are examples of *milestones*, or key events that can be used to orient planning for the intelligence analysis effort. You need to determine what the milestones are for your intelligence analysis effort so that you can plan your work and coordinate the work of others, if needed. The milestones you identify during this step should be major events, not the start and stop dates for every step in the intelligence analysis effort.

### **5.3.3. List the Activities that Must Be Completed to Address the Intelligence Issue**

After you develop the substantive areas of analysis, you can begin matching who has the knowledge needed with those substantive areas of the intelligence issue. When you look at the knowledge required to understand the dynamics and interactions of the situation, including its actors, artifacts, environment, and time frames, you may find that some of the knowledge required for addressing the intelligence issue lies outside the scope of your responsibility.

If some of the substantive areas needed are outside the scope of your responsibility, you will need to collaborate with and obtain contributions from other analysts. You will need to identify who has knowledge about the actors, environment, artifacts, and time frames contained in the substantive areas of analysis. What will be the nature of your collaboration and what will you need them to contribute?

In addition, since you have identified the major milestones of the analysis effort, you can also discuss with other analysts the time frame in which you need their contributions.

#### **5.3.4. Identify any other Resources Needed**

In some cases your analysis effort may require using resources in addition to the analysis work done by you and others. Examples include the use of contractual support for specific technical areas of analysis or perhaps obtaining specialized software for your use to develop a computer-based model. If your intelligence issue requires these types of resources, you should identify them in your analysis plan. You should also identify the activities associated with using these resources.

#### **5.3.5. Develop an Overall Schedule**

Once you have identified milestones or key events for the intelligence analysis effort, what needs to be done, and who needs to do it, you are ready to prepare an overall schedule. Of course, the nature of your time frames and schedule will be different for an AOR issue. For an AOR issue, the focus should be on identified time frames during which you want to achieve an understanding of the various substantive areas associated with your AOR. Thinking about these substantive areas will later aid you as you develop your information plan for your AOR, which is covered in the next FAC section.

You may generate a manual version of the schedule or use computerized tools to assist you with the schedule. We have included a sample Analysis Plan in subsection 4.5. However, the format you choose to use is up to you. It may simply be a list of activities, dates, and people involved or it may consist of a graphical representation of the relationships between work components, time to complete, and major events. This graphical representation may be supplemented with notes if special considerations are involved with the effort. The schedule should be in a format that helps you think about the work that needs to be accomplished and when it needs to be completed. The goal of this step is to produce a “useful, visible tool”<sup>79</sup> that assists you, and those you might work with, in understanding the intelligence analysis effort.

#### **5.3.6. Write the Analysis Plan**

What does the analysis plan cover? A sample Analysis Plan using the case study information in this section is included in subsection 4.5. A typical analysis plan should contain the following:

- The intelligence issue statement
- A description of the substantive areas of analysis for the intelligence analysis effort and who will do the analysis related to each area
- A schedule for the activities involved with the intelligence analysis effort, including review activities
- The resources needed

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<sup>79</sup> McDowell p. 91.

- Contingency plans, if appropriate

Since the analysis plan is written by you, for you, you can modify the contents and format of the analysis plan to meet the needs of the intelligence effort and your work style.

#### 5.4 Summary

The importance of planning for a wide range of human endeavors is well understood and widely accepted. Planning for an intelligence analysis effort can present some unique challenges, but the careful consideration of the substantive areas of analysis can help create the conditions for an effective plan. In addition, developing the substantive areas of analysis provides a foundation for the work you do for information planning and acquisition, the topics described in the next two sections of the FAC.

#### 5.5 Analysis Plan for the Example – External Issue

INTELLIGENCE ISSUE STATEMENT (24 May 09): Understand the likelihood that the Blues will overthrow General Alpha in the next month to support advice, decision making, and planning relative to providing U.S. assistance to the Blues. Understand the conditions for success and failure (with evidence supporting each) and the consequences of failure (including the rationale for assessing those consequences), focusing on the consequences during the next year.

SUBSTANTIVE AREAS OF ANALYSIS (i.e., what do you need to know to address the intelligence issue. You may find it helpful to identify those areas already known and unknown.)

INCLUDE WHO WILL DO THE ANALYSIS RELATED TO EACH AREA:

- *The status of the Blues' combat capabilities (Known).* Some considerations would be potential improvements, in the short-term, through acquisition of more arms and training and by recruiting more personnel (Largely a Known but need to update).
  - Will rely on finished analysis products already done (by me and another analyst in my organization). I will then focus analysis efforts on incoming information since those products were done.
- An assessment by the Blues of the combat effectiveness of General Alpha's forces. Some considerations in this assessment would include equipment, training, recent performances, deployment, and loyalty of the troops (Largely a Known but need to update).
  - Will rely on finished analysis products already done (by me and another analyst in my organization.. I will then focus analysis efforts on incoming information since those products were done.
- The state of the internal political environment in Orange. Some considerations are the popularity of General Alpha, the standard of living, the degree the citizens are oppressed, the effects of any efforts to change General Alpha's popularity, and other social and economic conditions within the country (Knowns and unknowns, see below).
  - Will rely on finished analysis products done by CIA - *Known*. Will contact the responsible analyst for a contribution on any updates in perspective since the finished product was done - *Unknown*.

- The state of the external political environment. Some considerations are General Alpha's relationship with neighboring countries and the degree of active support provided to General Alpha (Largely aware of, mostly know. Need to update).
  - Will rely on finished analysis products done by CIA. Will contact the responsible analyst for a contribution on any updates in perspective since the finished product was done.
- The possibility of attempting to measure current conditions by conducting small scale conflicts with General Alpha's forces and then evaluating the results.
  - Will review recent information, discuss with other analysts and solicit contributions if they are aware of any planning or actions – *Unknown*.
- The acquisition of financial and other support for the operation of the Blue forces (Largely a Known, need to update).
  - Will rely on finished analysis products done by Treasury. Will contact the responsible analyst for a contribution on any updates in perspective since the finished product was done.
- Any other factors that would inform the Blues about their ability to succeed (Unknowns, need to spend time on).
  - Review finished analysis products for these factors. Discuss with key analysts expert on Blue's situation. Solicit inputs if discussions indicate they will be of use.
- The deployment of General Alpha's forces and the General's ability to move the forces (Known, but need to update.)
  - Will rely on finished analysis products already done (by me and another analyst in my organization. I will then focus analysis efforts on incoming information since those products were done.
- The history of how General Alpha originally seized power in terms of leadership, tactics, and his reaction to adverse information (Known)
  - Will rely on finished analysis products done by CIA and DIA. Will contact the responsible analysts for a contribution on any updates in perspective since the finished products were done.
- The existence of support from leaders of other countries (Largely a Known, but need to update).
  - Will rely on finished analysis products done by CIA and DIA. Will contact the responsible analysts for a contribution on any updates in perspective since the finished products were done.
- SCHEDULE OF ACTIVITIES (include review activities): Based on the customer's request, only 5 days are available to address this intelligence issue. As a result, all contributions must be received, all analysis must be done, and all review activities must be done within the 5 days. I have discussed the possibility of an abbreviated review cycle with management and they have agreed to ½ day. The planned schedule is as follows:
  - Days 1 & 2, request contribution initiate discussions

- Days 2, plan and initiate information acquisition
- Days 3 and 4, receive contributions
- Days 3 and 4, do analysis and begin writing the product
- Day 5, finish the product and complete review

RESOURCES NEEDED: Acquiring information will require some assistance from our information providers in the library function. Efforts will be made to have priority placed on expediting acquiring info for this effort. No contractual or other resources are needed.

CONTINGENCY PLANS: I will stay in contact with all parties involved in the effort to try and ensure that effort stays on track, given the extremely short time frame.



## 6.0 DEVELOPING THE INFORMATION PLAN

*...the only man to do the collecting of data (beyond obvious materials) which he cannot name by title is the one who knows what he is looking for. Should there exist a man in the library unit who was so great an Iranian expert that the professional Jones could make his wants known without giving a lecture course on Iranian life and politics, then this man should not be on the library staff. He should be on Mr. Jones's staff.<sup>80</sup>*

### 6.1 Introduction

At this point in the FAC you have developed a good understanding of the intelligence issue and identified the substantive areas of intelligence analysis. You have planned for the resources that are required, identified who will do the work, and when the work needs to be completed. The next stage in the FAC is to translate your understanding of the intelligence issue and the events, participants, and decisions described by the substantive areas of intelligence analysis into a strategy for seeking information about those topics. The strategy you develop for seeking information will be contained in an *information plan*, a written document that describes the categories of information to search, where to look for information, and any conditions of the search. You can think of the information plan as being a protocol, or a set of guidelines, for locating the information you need in order to address the intelligence issue.

The importance of developing a comprehensive and valid information plan cannot be overstated. Although developing an information plan will not guarantee a high quality analytical outcome, poor information acquisition will unquestionably lead to a poor analytic outcome. The information plan is an essential step in ensuring you will be successful in acquiring as much quality information as humanly possible, within the time available, in order to provide the best possible response to the intelligence issue.

Keep in mind that your information plan most likely will not be static. While the subject areas needed to address the intelligence issue may not change, the acquisition of information in the subject areas will be anything but fixed. As you acquire information, this information may produce more avenues for exploration and analysis. Much of this activity will not impact the overall information plan. However, after you acquire some information, you may realize that you need to explore a new path. When this occurs you may, of necessity, have to alter the original information plan.

*Where does the creation of the information plan fit into the analysis process?*

In the Introduction and Background Section of the FAC we discussed the intelligence analysis process first described by Sherman Kent.<sup>81</sup> Kent's process included the following steps:

2. The appearance of a problem requiring the attention of a strategic intelligence staff.
3. Analysis of this problem to discover which facets of it are of actual importance to the U.S. and which of several lines of approach are most likely to be useful to its governmental customers.
4. Collection of data bearing upon the problem as formulated in Stage 2. This involves a survey of data already at hand and available in the libraries of documentary materials,

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<sup>80</sup> Kent, S. *Strategic intelligence for American world policy*, Princeton University Press, Princeton, NJ, 1949, p. 137

<sup>81</sup> Kent pp. 157-158.

and an endeavor to procure new data to fill in gaps.

As Kent described in Step 2, when you developed the intelligence issue statement, you began your analysis of the intelligence problem. You identified those facets of the issue that are of importance to your actual or prospective customers. Your analysis of the problem, which we refer to as the intelligence issue, continued as you produced the analysis plan. By further exploring and elaborating the substantive knowledge needed to address your intelligence issue statement, you laid the groundwork for Step 3, which we refer to as *information acquisition* in the FAC. Before you can begin information acquisition, you have to identify subject areas for searching and the sources to be searched. Once you have identified subject areas and sources you have created what we call an *acquisition strategy*; this acquisition strategy is described in the information plan.

*Who is the audience for the information plan?*

The information plan is created by you, for you, to set the direction for information seeking. It is another instance of the FAC's "writing as thinking" emphasis. **Developing an acquisition strategy is a major cognitive challenge**; the goal of setting a direction for information acquisition is to increase the effectiveness of your information seeking activities.

*Why does the intelligence analyst develop the information plan?*

The quote from Kent that opened this section of the FAC is still applicable today. As we discussed in the Introduction and Background Section, the meaning of information is dependent on the individual making the assignment of meaning. Who better knows what information is needed to solve a problem than the person who has to solve the problem? As a result, you, as the analyst with the expertise needed to address the intelligence issue, play an essential role in establishing what information is needed and how to obtain this information. **This role cannot be delegated to others.** You may consult others in order to locate possible sources for information, to understand the specifics of search strategies or systems, or to help you in other ways with your search. However, you must identify the acquisition strategy you intend to follow and therefore set the direction for the search.

*How does developing an information plan differ from establishing Intelligence Collection Requirements (ICRs)?*

Developing an information plan for an intelligence issue is not the same as establishing ICRs for the different information sources or "INTs" (e.g., Imagery Intelligence (IMINT), Measurement and Signature Intelligence (MASINT), or Human Intelligence (HUMINT). While establishing ICRs is a critical part of your role as an intelligence analyst, analysis for an intelligence issue will likely be based on information that is already collected. If, as you work on an intelligence issue, you only use information delivered to you in response to standing or ad hoc ICRs, it is possible that you will miss critical information needed to address an intelligence issue. The information plan is designed to address a specific intelligence issue and considers all information sources as possibilities for useful information. Unless you are new to your AOR (i.e., working an AOR issue), the information plan assumes that established ICRs for your area of responsibility are already in place and being updated. If you are working on an AOR issue, you probably will need to establish your ICRs and review any that might already be in place for your AOR. Regardless of the type of issue you working, if you see a need for additional or modified ICRs,

you should certainly include planning to do them in your information plan. But, if you rely solely on ICRs to address an intelligence issue, you risk producing a flawed analysis.

#### **JUST A NOTE BEFORE YOU CREATE AN INFORMATION PLAN**

Developing an information plan relies on knowledge of both intelligence community and open literature sources. For the purposes of the FAC, we assume that intelligence analysts have at least a working knowledge of these repositories of information. If you do not have at least a background understanding of the information sources available to you, you may want to consider activities that would improve your knowledge of these information sources before you create an information plan. You may find that the Appendices included with this section will be helpful not only as you create a specific information plan but as you learn more about the information sources available to you.

## **6.2 Building the Information Plan**

Developing an information plan consists of developing the acquisition strategy you intend to follow to address the intelligence issue. Creating the information plan consists of the following activities:

- Identify broad topics for information acquisition, based on the substantive areas of analysis identified in the analysis plan
- Identify the best resources for locating information related to the broad topics
- Select the IS&R systems to be used for information acquisition
- Identify who will acquire the identified information
- Create the schedule for acquiring the identified information
- Write the information plan

### **6.2.1. Identify Broad Topics for Information Acquisition**

As any analyst knows, scarcity of information on a broad topic is not usually a problem. Intelligence collection systems acquire an ever increasing amount of data, much of which is neither analyzed nor even reviewed. In addition, open source information from the internet and world publications grows at an exponential rate. As an analyst for your area of responsibility, if you establish information requirements that are too broad, you can easily be overwhelmed by the amount of available information. Conversely, if you are overly specific in expressing your information needs, you can miss information essential to your analytic responsibilities. Balancing the breadth and the specificity of your information seeking applies to your response to a specific intelligence issue just as it does to your overall area of responsibility. Establishing a balance between these two extremes of information retrieval is an absolute necessity for success in addressing your intelligence issue.

When you created the analysis plan you devoted considerable effort to developing the substantive areas of analysis associated with your intelligence effort. You will use these substantive areas of analysis as the basis for identifying the broad topics for which you will

search during information acquisition. These search areas will likely consist of subject matter content, personalities, organizations, activities, equipment, and locations related to the intelligence issue. For example, you may have identified that organization XYZ could play a major role in the decision making related to your intelligence issue. As a result, you will want to seek information about organization XYZ and the individuals associated with it. At this stage of the FAC, you do not need to identify the specific individuals of potential interest, but if you already know their names, you can list them. Otherwise, the information plan will include “organization XYZ” and “individuals associated with XYZ.” Or, you may want to get information on organizations you don’t yet know about by searching on various activities. In this case your information plan would list those activities as search areas.

In addition to identifying key topics, personalities, organizations, activities, equipment, and locations as search topics, you may also want to include:

- terminology or vocabulary new to you
- desired media – do you want videos, photos, print, or other types of data?

The end result of characterizing the underlying information associated with the substantive areas of analysis is a list of search topics – what to include and what to exclude during information acquisition.

### **6.2.2. Identify the Best Resources for Locating Information**

The intelligence community operates a wide variety of collection programs that are potential resources during information acquisition. While you might search each of these resources for every intelligence issue you encounter, it would not be effective or efficient to do so. In order to use your time most effectively, you should determine which of the information sources available to you is likely to provide the information you need.

Supplement to this section of the FAC is a reference that lists many of the various sources (e.g., INTs) you might consider for an intelligence issue. Other sources of information may exist for your intelligence issue; add them to the list as needed. Using your knowledge of the characteristics and content of the information from these sources will help you decide whether or not each information source may or may not be of use. If you see a source that you have not used previously, but which seems to apply to your intelligence issue, consult with an information specialist or fellow analysts who have experience with this type of information source for more information about it. Once you know more about a source you can decide whether or not you will use it for your intelligence issue. Use the comments column to record your impressions of each source and to identify those sources which seem to be most relevant to your acquisition strategy. You will use these comments when you create the schedule for information acquisition and the overall information plan.

### **6.2.3. Select IS&R Systems**

After you identify the information sources (Supplement 1) that are related to the search topics you must then determine which IS&R systems contain information from these sources. This step would be easier if the following recommendation had been implemented:

Create an IC-wide information repository. Analysts should be able to go to one place to find out what information is available across the IC and how they can access it.<sup>82</sup>

Unfortunately, no such intelligence community repository or IS&R system exists. Instead, an information source may have an individual IS&R system established for it. In addition, many IS&R systems were implemented to serve the needs of a single organization. To further compound the task of obtaining all the information relevant to the issue, the established IS&R systems are not exhaustive; that is, they do not contain all the available information from a particular information source. Finally, the content of one IS&R system may be duplicated in other IS&R systems.

Naturally you want to ensure that you acquire all relevant information from a given information source. However, the potential exists that if you use all the IS&R systems that contain a specific information source, you will get the same information multiple times. Receiving duplicate information does increase the amount of time you expend to review the search results. On the other hand, if you try to avoid this problem by using only one IS&R system, the result may be an incomplete coverage of the available relevant information. This dilemma requires that you have knowledge of the scope and coverage of each of the IS&R systems operating in the intelligence community so that you can determine which ones should be used to obtain the best coverage while minimizing duplication. How do you acquire data about the scope and coverage of each of these systems?

Supplement 2 to this section of the FAC is a guide to aid you in characterizing each of the IS&R systems you might consider for an intelligence issue. Knowing who controls access and how you get approval for that access, the classification level of the content of the IS&R, how the system is accessed, the form of the IS&R systems output, and whether you are familiar with the retrieval language are all aspects of an IS&R system that help you with plans for using it if you determine that it is relevant to your search. Some factors, such as obtaining approval for access, may also affect the schedule you create for information acquisition.

#### ***A Special Note about Open Source:***

*An important element in this whole question of data collection planning is that the analyst must constantly be on guard to avoid what could be thought of as the official data only syndrome. This manifests itself in intelligence units where the prevailing culture is one in which trust is vested in official sources only; all others are, to a degree, regarded with uncertainty, concern or mistrust.*<sup>83</sup>

Although the need for a single comprehensive open source IS&R system was identified in 1995,<sup>84</sup> such a comprehensive system does not currently exist for the intelligence community. The intelligence community does have access to a wide variety of databases of open source information. Agencies may select and process information deemed of interest to the intelligence community but not otherwise readily available. Much of this information has undergone

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<sup>82</sup> Lahneman, W. J. *The Future of Intelligence Analysis. Volume I. Final Report*. Center for International and Security Studies at Maryland, College Park, MD, 2006, p. 86

<sup>83</sup> McDowell, D. *Strategic Intelligence: A Handbook for Practitioners, Managers, and Users*. Istana Enterprises Pty. Ltd., Pambula, NSW, Australia, 1998, p. 110

<sup>84</sup> Director of Central Intelligence, Scientific and Technical Intelligence Committee *Preparing US Intelligence for the Information Age, Part III: Analytical Tools, Recommendations for Open Source Information. Technical Report STIC 95-002*. National Technical Information Service, Springfield, VA, 1995.

translation by an agency or its contractors and is stored in the agency's IS&R system. In addition, your organization or the broader intelligence community may provide you with access to commercially available open source information for which they pay a subscription fee.

An overwhelming amount of open source information exists in repositories not associated with intelligence IS&R systems. With the advent of the internet, a plethora of information is available; the growth of the internet shows no signs of abating. According to one author there are approximately 20 billion "documents" in cyberspace, also known as the *visible* web. The visible web is information that can be accessed through the use of a search engine, such as Google, Bing, Yahoo, Alta Vista, HotBot, MSN, Ask, or Firefox.

The estimate above does not include a further 550 billion documents that reside on the *deep* or *invisible* Web. The invisible Web has been described as publicly accessible, non-proprietary pages that are not 'seen' by the spiders of general search engines. However, search engines are working on finding ways to make this material accessible.<sup>85</sup>

While many view the internet/world-wide web as "readily accessible and free," this is not true of all sites on the internet since much of the deep Web is not readily accessible.<sup>86</sup> Whichever search engine is used, no search engine is able to search and index the entire internet. This includes even the visible web since some sites will deny access to the tools used by these services. Some sites also allow individuals to access content by directly browsing the web site, but do not allow their content to be searched by general search engines.

We discuss all of these situations with the internet so that you understand that a single approach to searching the internet may result in incomplete or unhelpful results. You must familiarize yourself with all of the likely ways that you might use to search on the web. At the same time, you will have the dilemma we discussed earlier: How can you find relevant information without an overwhelming expenditure of time and resources?

As a result of the above situation, identifying which open source IS&R systems are likely to contain the information you need requires an extensive knowledge of each of them. If your organization has established personnel who serve as information providers, they can be of assistance since awareness and knowledge of the content and operational characteristics of IS&R systems is part of their responsibility. The information provider is an invaluable source for acquiring the information needed to complete the guide in Supplement 2.

#### **6.2.4. Identify Who Will Acquire the Identified Information**

You may not be the only person involved in information seeking for a particular intelligence issue. Some analysts rely on search intermediaries such as organizational information providers to actually conduct online or hard copy searches for information. Some IS&R systems may be complex or unique and require searchers with specialized knowledge in order to obtain useful results. In order to develop your acquisition strategy completely, we suggest that you consider each information source you plan to use. Determine who will actually conduct the information acquisition activity for that source, including specific names if available. You will need this information in order to create the schedule for the information plan.

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<sup>85</sup> Henninger, M. *The Hidden Web: Finding Quality Information on the Net*. UNSW Press, Sydney NSW, Australia, 2008, p. 159

<sup>86</sup> Henninger p.1

### 6.2.5. Create an Information Acquisition Schedule

At this stage you have the following inputs to your acquisition strategy:

- The broad search topics for information relevant to the intelligence issue
- Your judgment on the potential for each information source (INTs) to provide relevant information
- A determination of which IS&R systems contain the desired INT information
- Who will do the actual acquisition of the information about each search topic
- The time allocated in the analysis plan to information acquisition

These inputs allow you to make a series of judgments. While the ideal scenario in information acquisition would be for you to search until you have located all of the possible relevant information, operational realities usually do not allow for this ideal. How do you create a realistic schedule for information acquisition?

The most critical input to creating an information acquisition schedule is the time allocated to it in the overall schedule developed for the analysis plan. Given that timeframe, what are the specific actions that are likely to result in the retrieval of the maximum amount of relevant information in the time allotted? In order to help you determine those actions, the following paragraphs contain some considerations and hints. Of course, you may find that, upon closer examination, you need to adjust the time allocated for information acquisition in the analysis plan. You may make this adjustment if the overall schedule permits it.

We recommended earlier in this section that you should note those sources in Supplement 1 which are the richest in the amount of relevant information or potential value of the information. These are now inputs to your judgments about the schedule.

Then, in Supplement 2, you collected information on where such information might be found and a variety of factors that will govern the ease and timeliness of using such systems. As you create the schedule you need to consider factors such as:

- Do you maintain a personal collection of information on the intelligence issue? How current is your personal collection of information? What is your familiarity with the topic? If you plan to search your own holdings on a topic as well as the sources identified in Supplement 2, you need to allocate time to that activity in the information plan.
- How critical are various information topics to the overall information acquisition effort? If the schedule to address your issue is limited, you may need to make tradeoffs relative to search areas and IS&R systems pursued. This may be quite difficult to determine before searching begins, but is something you may need to consider initially and later when you are searching.
- Do you already have access to the selected IS&R system or do you need to obtain it before you can conduct a search? The time needed to identify who controls access and then obtaining access needs to be considered in the schedule.
- Do you know how to use the IS&R system? Your schedule needs to consider the time it would take to learn at least the basics of using the IS&R system if you aren't already familiar with it. An experienced user can operate with shorter deadlines

than someone who is just learning the system. Your schedule should reflect your expertise with the IS&R systems you are planning to use.

- Are you planning on working with intermediaries, e.g. information specialists, librarians, or other information providers, during information acquisition? If so, you need to consider their availability and timeframes in your schedule.
- Are you assuming that using an intermediary will shorten the time needed to complete information acquisition? Using an intermediary may or may not compress the schedule you are planning. You should realistically consider such factors as communication lags, learning periods, and interaction during information acquisition while creating a schedule that includes intermediaries.
- Have you considered the possibility of additional information acquisition after your initial efforts to obtain information? You may find that your analysis of the retrieved information indicates that other sources or content need to be explored. Building some slack in the schedule to accommodate these changes in acquisition strategy is a good idea if your schedule will allow it.

Based on the above inputs, you can create a timeline for information acquisition that achieves the coverage we described earlier. Your schedule will optimize your efforts to obtain the maximum amount of relevant information while still meeting your or the customer's deadlines.

#### **6.2.6. Write the Information Plan**

The information plan provides the direction for information acquisition. We recommend that an information plan contains the following sections:

- The intelligence issue statement
- A full restatement of each of the substantive areas of intelligence analysis from the analysis plan
- The acquisition strategy for your intelligence issue:
  - The broad topics within each substantive area of intelligence analysis identified in the analysis plan
  - The sources that provide information of the desired content for the overall intelligence issue
  - Who will acquire the desired information for the intelligence issue
- An overall information acquisition schedule that summarizes the information acquisition strategy for your intelligence issue in a format that makes sense to you

Since the information plan is written by you, for you, you can create an information plan that suits your work style and the scope and complexity of the intelligence issue. For example, you might consider basing the schedule on what needs to be done for each of the substantive areas of intelligence analysis. You might also develop a schedule that is organized by IS&R system. Choose the approach that best supports the people and needs of your current intelligence analysis effort.

Subsection 5.6 provides an example of an information plan. It is based on the same example we discussed for the "Developing Intelligence Issue Statements" and the "Setting a Direction: The



Analysis Plan” sections of the FAC. We included enough detail in the example to illustrate the information plan, but we did limit some aspects so it would work well as a concise example.

### **6.3 Summary**

Whether your intelligence issue involves a short turnaround response or extensive strategic analysis, gathering information is a key part of the intelligence analysis process. Setting an acquisition strategy helps you address an issue efficiently and effectively, reduces repetition and mistakes, and allows you to communicate with other analysts and information intermediaries. An acquisition strategy also helps you avoid tunnel vision when considering possible sources of information. If you systematically consider all possible sources, you minimize the risk of relying too heavily on one source or of missing relevant sources that you may not have considered previously. The information environment that you are expected to understand and use is rapidly expanding, divergent, and anarchic throughout. An information plan helps you navigate this ever-changing and admittedly difficult landscape.

#### 6.4 Supplement 1: Information Sources

**NOTE:**

The sources listed are a starting point. Add other sources as needed for your intelligence issue.

| Information Source                                     | Of Use | May be of Use | Not of Use | Comments |
|--------------------------------------------------------|--------|---------------|------------|----------|
| <i>Geospatial Intelligence (GEOINT) Sources</i>        |        |               |            |          |
| <i>Electro-optical imagery</i>                         |        |               |            |          |
| <i>Foreign maps &amp; charts</i>                       |        |               |            |          |
| <i>Geomag survey</i>                                   |        |               |            |          |
| <i>Hydro survey</i>                                    |        |               |            |          |
| <i>Hyperspectral imagery</i>                           |        |               |            |          |
| <i>Infrared imagery</i>                                |        |               |            |          |
| <i>Light detection and ranging (LIDAR)</i>             |        |               |            |          |
| <i>Interferometric synthetic aperture radar (ISAR)</i> |        |               |            |          |
| <i>Moving target indicator (MTI)</i>                   |        |               |            |          |
| <i>Multispectral imagery (MSI)</i>                     |        |               |            |          |
| <i>Non-image infrared</i>                              |        |               |            |          |
|                                                        |        |               |            |          |

| Information Source                                   | Of Use | May be<br>of Use | Not of Use | Comments |
|------------------------------------------------------|--------|------------------|------------|----------|
|                                                      |        |                  |            |          |
|                                                      |        |                  |            |          |
|                                                      |        |                  |            |          |
| Signal Intelligence (SIGINT) Sources                 |        |                  |            |          |
| Communication Intelligence (COMINT)                  |        |                  |            |          |
| Electronic Intelligence (ELINT)                      |        |                  |            |          |
| Foreign Instrumentation Signal Intelligence (FISINT) |        |                  |            |          |
| HUMINT                                               |        |                  |            |          |
| Other Open Source Intelligence (OSINT) Sources       |        |                  |            |          |
| Print                                                |        |                  |            |          |
| Digital                                              |        |                  |            |          |
| Radio                                                |        |                  |            |          |
| Television                                           |        |                  |            |          |
| Visible Web                                          |        |                  |            |          |
| Invisible Web                                        |        |                  |            |          |
|                                                      |        |                  |            |          |

| Information Source             | Of Use | May be<br>of Use | Not of Use | Comments |
|--------------------------------|--------|------------------|------------|----------|
|                                |        |                  |            |          |
|                                |        |                  |            |          |
| OSINT Sources                  |        |                  |            |          |
|                                |        |                  |            |          |
|                                |        |                  |            |          |
| Finished Intelligence Products |        |                  |            |          |

**6.5 Supplement 2: IS&R Systems**

| <b>IS&amp;R<br/>Name</b> | <b>Access<br/>Control</b> | <b>Access<br/>Approval</b> | <b>Classification<br/>Level</b> | <b>How<br/>Accessed</b> | <b>Output<br/>Form</b> | <b>Used<br/>Previously?</b> | <b>Source<br/>Content</b> |
|--------------------------|---------------------------|----------------------------|---------------------------------|-------------------------|------------------------|-----------------------------|---------------------------|
|                          |                           |                            |                                 |                         |                        |                             |                           |
|                          |                           |                            |                                 |                         |                        |                             |                           |
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|                          |                           |                            |                                 |                         |                        |                             |                           |

## 6.6 Information Plan - Example

INTELLIGENCE ISSUE STATEMENT (24 May 09): Assess the likelihood that the Blues will overthrow Gen Alpha in the next month to support advice, decision making, and planning relative to providing U.S. assistance to the Blues. Assess the conditions for success and failure (with evidence supporting each) and the consequences of failure (including the rationale for assessing those consequences), focusing on the consequences during the next year. The product was due NLT 31 May 09.

### SUBSTANTIVE AREAS OF ANALYSIS

- The status of the Blues' combat capabilities. Some considerations would be potential improvements, in the short-term, through acquisition of more arms and training and by recruiting more personnel.
- An assessment by the Blues of the combat effectiveness of General Alpha's forces. Some considerations in this assessment would include equipment, training, recent performances, deployment and loyalty of the troops.
- The state of the internal political environment in Orange. Some considerations are the popularity of General Alpha, the standard of living, and the degree the citizens are oppressed, and the effects of any efforts to change General Alpha's popularity, and other social and economic conditions within the country.
- The state of the external political environment. Some considerations are General Alpha's relationship with neighboring countries and the degree of active support provided to General Alpha.
- The possibility of attempting to measure current conditions by conducting small scale conflicts with General Alpha's forces and then evaluating the results.
- The acquisition of financial and other support for the operation of the Blue forces.
- Any other factors that would inform the Blues about their ability to succeed.
- The deployment of General Alpha's forces and the General's ability to move the forces.
- The history of how General Alpha originally seized power in terms of leadership, tactics, and his reaction to adverse information.
- The existence of support from leaders of other countries.

### TOPICS ON WHICH INFORMATION WILL BE SOUGHT

As was pointed out in the Analysis Plan Section, the substantive areas relate to the Blues' decision to attack General Alpha and an assessment of whether or not the Blues will succeed if they attack. The following information is relevant to making judgments on the substantive areas identified.

- Blue's combat capabilities
  - Manning levels
  - Experience levels
  - Equipment
  - Training

- Morale
- Performance
- Deployment
- General Alpha's combat capability
  - Manning levels
  - Experience levels
  - Equipment
  - Training
  - Morale
  - Performance
  - Deployment
- Political environment
  - Form of government and stability prior to General Alpha's take over
  - Standard of living
  - Freedom of speech
  - Toleration of dissent
  - Popular support
  - Propaganda efforts
- International support – General Alpha
  - Attitude of neighboring countries
  - Membership in regional/international forum
  - Military and/or economic aid
- International support - Blues
  - Attitude of neighboring countries
  - Military and/or economic aid
- Personalities
  - Blue military leadership
  - General Alpha
  - Orange government leadership
  - Orange military leadership

## 6.7 Supplement 1: Information Sources (Example)

**NOTE:**

**The sources listed are a starting point. Add other sources as needed for your intelligence issue.**

| Information Source                              | Of Use | May be of Use | Not of Use | Comments |
|-------------------------------------------------|--------|---------------|------------|----------|
| GEOINT Sources                                  |        |               |            |          |
| Electro-optical imagery                         | X      |               |            |          |
| Foreign maps & charts                           | X      |               |            |          |
| Geomag survey                                   |        |               | X          |          |
| Hydro survey                                    |        |               | X          |          |
| Hyperspectral imagery                           |        | X             |            |          |
| Infrared imagery                                |        | X             |            |          |
| Light detection and ranging (LIDAR)             |        |               | X          |          |
| Interferometric synthetic aperture radar (ISAR) |        |               | X          |          |
| Moving target indicator (MTI)                   | X      |               |            |          |
| Multispectral imagery (MSI)                     |        | X             |            |          |
| Non-image infrared                              |        | X             |            |          |
|                                                 |        |               |            |          |



| Information Source | Of Use | May be<br>of Use | Not of Use | Comments |
|--------------------|--------|------------------|------------|----------|
|                    |        |                  |            |          |
|                    |        |                  |            |          |
|                    |        |                  |            |          |
| SIGINT Sources     |        |                  |            |          |
| COMINT             | X      |                  |            |          |
| ELINT              | X      |                  |            |          |
| FISINT             |        |                  | X          |          |
|                    |        |                  |            |          |
| HUMINT             | X      |                  |            |          |
| OSINT Sources      |        |                  |            |          |
| Print              | X      |                  |            |          |
| Digital            | X      |                  |            |          |
| Radio              | X      |                  |            |          |
| Television         | X      |                  |            |          |
| Visible Web        | X      |                  |            |          |
| Invisible Web      | X      |                  |            |          |

| Information Source             | Of Use | May be<br>of Use | Not of Use | Comments |
|--------------------------------|--------|------------------|------------|----------|
|                                |        |                  |            |          |
|                                |        |                  |            |          |
|                                |        |                  |            |          |
| Other OSINT Sources            |        |                  |            |          |
|                                |        |                  |            |          |
|                                |        |                  |            |          |
| Finished Intelligence Products | X      |                  |            |          |

## 6.8 Supplement 2: IS&R Systems (Example)

**NOTE:**

The sources listed are a starting point. Add other sources as needed for your intelligence issue.

| IS&R Name                        | Access Control                                 | Access Approval | Classification Level                                    | How Accessed | Output Form | Used Previously? | Source Content        |
|----------------------------------|------------------------------------------------|-----------------|---------------------------------------------------------|--------------|-------------|------------------|-----------------------|
| Library of National Intelligence | Director of National Intelligence Agency (DNI) | Online          | Top Secret/Sensitive Compartmented Information (TS/SCI) | Online       | Digital     | Yes              | Finished Intelligence |
| DIA HUMINT                       | DIA                                            | Online          | Secret                                                  | Online       | Digital     | Yes              | HUMINT                |
| CIA WIRE                         | CIA                                            | Online          | TS/SCI                                                  | Online       | Digital     | No               | All Source            |
| SIGINT                           | NSA                                            | Online          | TS/SCI                                                  | Online       | Digital     | Yes              | COMINT                |
| Internet                         | None                                           | N/A             | Unclassified                                            | Online       | Digital     | Yes              | Open Source           |
| STRATFOR                         | Local information providers                    | Request         | Unclassified                                            | Intermediary | Digital     | No               | Hidden Web            |

## **6.9 Schedule Associated With Information Acquisition (Example)**

Based on the tasking, 5 days are available to provide a response to this intelligence issue. As a result, only 1 day can be allocated to do information acquisition. The acquisition strategy will make the maximum use of finished intelligence products coupled with academic reporting available on the Internet, all of which deal with the topics of interest. I'll contact the local information providers immediately for their assistance on the academic and STRATFOR information. I will use the IS&R systems containing recent HUMINT and SIGINT reporting to ascertain if there have been any changes from the status described in the finished intelligence products. A few hours will be reserved midway through the analysis so that additional information acquisition can occur based on the analysis of the initial information.

## 7.0 INFORMATION ACQUISITION

### 7.1 Introduction

Now that you have developed an information plan, it is time to put that plan into action. *Information acquisition* is the process of identifying and obtaining information from the various sources you identified in the information plan. Information acquisition provides the raw material for evaluation and study so that you can assign meaning to it, marshal evidence, form and evaluate hypotheses, and develop assessments for use by you, other analysts, and your customers.

*Where does information acquisition fit into the analysis process?*

In several previous FAC sections, we discussed the intelligence analysis process first described by Sherman Kent.<sup>87</sup> As you may recall, Kent's process included the following steps:

3. The appearance of a problem requiring the attention of a strategic intelligence staff.
4. Analysis of this problem to discover which facets of it are of actual importance to the U.S. and which of several lines of approach are most likely to be useful to its governmental customers.
5. Collection of data bearing upon the problem as formulated in Stage 2. This involves a survey of data already at hand and available in the libraries of documentary materials, and an endeavor to procure new data to fill in gaps.

As Kent described in step 2, when you developed the intelligence issue statement, you began your analysis of the intelligence problem. You identified those facets of the issue that are of importance to your actual or prospective customers. Your analysis of the problem, which we refer to as the intelligence issue, continued as you produced the analysis plan. By further exploring and elaborating the substantive knowledge needed to address your intelligence issue statement, you laid the groundwork for step 3, which we refer to as *information acquisition* in the FAC.

In the previous section of the FAC, you identified subject areas for searching, the sources to be searched, and created an acquisition strategy. **In this section of the FAC, we discuss the steps you need to take in order to complete the work described in Step 3.**

**Developing useful and complete search strategies and evaluating the results of a search** are major cognitive challenges for the analyst during information acquisition. It is essential that you are actively involved in information acquisition to assure that the direction you set in the information plan is realized. You play an important role in developing search strategies; you are irreplaceable in determining whether the information retrieved during information acquisition is pertinent to the intelligence issue.

### 7.2 Relevance

Before we discuss how to develop a search strategy and retrieve information, we need to discuss one concept in depth. In order to be useful during analysis, the information you obtain as a result of a search must be *relevant*. What is relevant information? The information that you find that pertains to your intelligence issue is relevant.

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<sup>87</sup> Kent, S. *Strategic Intelligence for American World Policy*, Princeton University Press, Princeton, NJ, 1949, pp. 157-158.

Another key characteristic of relevance is that it can only be determined by the person who requested the information. Information is either accepted or rejected based on the judgment of the person with the information need. You, as the intelligence analyst, assess relevance during information acquisition.

The goal of your relevance judgments is to assure that your search strategy and retrieval processes are effective and that the data you acquire is *potentially* useful for addressing the intelligence issue. That is, the relevance judgment you are making answers the questions “Is this the sort of thing I am looking for? Does it pertain to the intelligence issue?” You are making a broad judgment; you are not trying to evaluate the specifics of each result you retrieve. Instead, you are determining whether your search is producing results that are topically related to the intelligence issue. At this point, your focus is to make decisions about whether or not to retain the information you find for further consideration in your analysis.

The initial information acquisition activities we describe in this section of the FAC are only the first of what may be several information seeking events while you are addressing the intelligence issue. During later sections of the FAC we’ll discuss how you will make judgments to determine the value of information, assign meaning to the information, evaluate the accumulated evidence, and formulate and evaluate hypotheses about the intelligence issue. As you make these more involved judgments, you will engage in additional information acquisition.

### **7.3 Information Acquisition**

Information acquisition consists of the following activities:

- Formulation of an initial search strategy for the broad topics identified in the information plan
- Execution of the search strategy in each IS&R system selected in the information plan. Execution of the search strategy includes:
  - Examination of the results of each search to determine whether the references obtained are broadly relevant
  - Modification of the search strategy to incorporate new terms, new resources, or to change details of the search
  - Repetition of the above steps until you determine that the search is complete
- Acquiring and managing the materials retrieved during searching

#### **A NOTE ABOUT INFORMATION ACQUISITION**

The guidelines and processes we describe in the FAC for the formulation and execution of a search strategy are, by necessity, based on general principles. It is essential that you apply these principles using the specifics of each IS&R system you identified in the information plan. We strongly suggest that you work with information providers, help desks, or IS&R documentation while you are constructing and carrying out your search to make sure that you take full advantage of the features and contents of the IS&R systems you plan to use.

### 7.3.1. Formulation of an Initial Search Strategy

Information acquisition would be comparatively simple if everyone used the same words and phrases to express information, ideas, and concepts. Unfortunately originality and variety, rather than conformity, are more important to most authors, so authors use many different words and phrases to convey concepts and ideas. This variability has profound consequences for a searcher's ability to retrieve information.

All major IS&R systems do word matching between the information request and the content of documents as the basis for the response to an information request. The cognitive challenge during search strategy development is not simply to select the words and phrases that match your interests and, at the same time, reject the words and phrases that do not match your interests. Instead, the development of an effective search strategy is akin to peering into the minds of everyone who might have written on the search topic in order to discover as many related terms as possible.

At the same time, IS&R systems contain a paradox: words and phrases will be associated with information that both **matches** and **does not match** your interests. For a simple and easy example of this paradox, use Google or another general search engine to search your own name. You will most likely retrieve search results related to you, but it can be something of a shock to see how many other people in the world have the same name as you do. This simple search demonstrates a universal characteristic of IS&R systems: a search strategy that obtains all the information of interest will also retrieve much information that is **not** of interest.

Equally maddening for someone doing a search, a retrieval strategy designed to obtain **only** the information of interest will not retrieve **all** of the information of interest. If you perform the search on your given name, you will not retrieve instances of your nickname unless you specifically request it during the search. But searching on your nickname will also retrieve more irrelevant references connected to people that share your nickname. Thus, the challenge of using IS&R systems is how to balance the need for comprehensive retrieval of information with the reality of some wasted resources spent on information of no interest.

Fortunately, there are approaches you can use to cope with the issues surrounding content and the limitations of the retrieval capabilities of IS&R systems. As part of your search strategy you can:

- Select words and phrases that best represent the concepts and ideas of interest
- Use Boolean logic (see Supplement 1 to this section of the FAC for a tutorial) to express the relationship between the information request and the words in the content being searched

Using these approaches requires some creativity and experimentation, which are the cognitive challenges of information acquisition. The following hints provide a foundation for developing search statements for each of the broad topics you identified in the information plan:

For single words, the search statement will consist of the word.

- For more complex search topics identified in the information plan, list phrases related to the topic.
- Identify and list synonyms for both single words and phrases

- Remember to include alternate spelling of terms, plurals, special characters, and common misspellings as part of your search strategy.
- Develop a series of search statements that incorporate each of the words and phrases you identified as being related to the topic.
- Incorporate Boolean logic into the search statements that include more than one word. As you develop search statements for phrases, realize that an explicit occurrence of the phrase is one search statement. You may want to consider other statements that reflect additional positional relationships of the words in the phrase. That is, perhaps searching the words in the same sentence, paragraph, or within so many words of one another will also produce relevant results.

#### **A NOTE ABOUT NON-TEXTUAL SOURCES OF INFORMATION**

As you read our guidance about searching, remember that it also applies to searching for intelligence information that is in a format other than text, that is, photographic, video, or other forms of intelligence information. While the original item you are searching for is not text, it most likely is described and indexed using text in the IS&R system. Our suggestions in this section of the FAC apply to searching the text-based description of this material. If the IS&R has other special features designed to help you search this material, you should incorporate these features in your search as needed.

While creating an extensive list of search terms is desirable, completeness is not usually achievable in the early stages of a search. Searching is a learning process as well as a retrieval process – you will often learn about new terms and phrases as you search. These new terms and phrases can be searched on their own during later iterations of the search.

In the information plan you identified:

- the information sources that are likely to provide the type of information needed to address the intelligence issues
- the IS&R systems that contains these information sources.

In all probability the search and retrieval capabilities offered by these systems are not uniform. Some will not provide for the use of all the Boolean operators. Others will have limited ability to search within the same sentence or paragraph, for example. For an example of these variations, see Table 1 for a comparison of three major search engines used on the internet.



**Table 1: A Comparison of IS&R Search Capabilities**

| Search Engine                                                                                             | Advanced/Boolean Operators                                                                                         | Other Search Options                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Google</u></b><br><b>google.com</b><br>Ranks based on popularity (# of pages linked to).            | AND ( <i>default</i> )<br>OR ( <i>capitalized</i> )<br>- to remove words or phrases.<br>+ to include common words  | Wildcard to replace word(s) (e.g., <b>to * or * * *</b> )<br>No truncation.<br>Quotes for phrase.<br>Stems some words (+to turn off). |
| <b><u>Bing</u></b><br><b>bing.com</b><br>Optimizes searching for health, local, travel, and shopping      | AND ( <i>default</i> )<br>OR ( <i>capitalized</i> )<br>NOT ( <i>capitalized</i> ) to exclude words.                | No truncation.<br>Quotes for phrase.<br>For dates, type the name of the month instead of the calendar number.                         |
| <b><u>Yahoo! search</u></b><br><b>search.yahoo.com</b><br>Ranks based on relevancy (occurrence of terms). | AND ( <i>default</i> )<br>OR ( <i>capitalized</i> )<br>- to remove words or phrases.<br>+ to include common words. | No truncation.<br>Quotes for phrase.<br>Limit by date, language, domain, file type, and country in advanced search fields             |

Regardless of any variation in retrieval capabilities you might anticipate, at this stage you should develop a uniform series of search statements as if all of the IS&R systems you plan to use have a full retrieval capability.

*How can I keep track of my search terms, operators, and history?*

Throughout the FAC, we emphasize how writing benefits your cognition. Consequently, we strongly recommend that you create a search diary both while developing a search strategy and while executing your search. You can use the search diary to record search terms and statements, to capture additional ideas of search terms, and to document the IS&R systems you accessed during information acquisition. Since even simple searches can soon get complex, tracking all search statements and resources helps you make sure your search is complete and systematic.

A search diary does not have to be complex; a simple table that lists all of the search terms and any associated Boolean logic and where each term was searched will be enough to keep you organized and thorough. The search diary can be on paper or electronic. Use the format and approach that works best for you.

Another benefit of a search diary is that it can be a helpful resource when you have to determine and convey information on sources, uncertainties, and confidence levels for your analytic results. The timelines you established in the analysis plan may not allow the execution of an optimum search strategy. Knowing what could have been done versus what was done relative to the information used in the analysis can be useful when you have to communicate some measure of certainty with your analytical results.

## A NOTE ABOUT SEARCHING FOR PERSONALITIES, FACILITIES, OR EQUIPMENT

Retrieving information about personalities, facilities, or equipment is a crucial part of intelligence analysis information acquisition. The next topic in this FAC section, “Execution of the search strategy”, assumes that you will encounter two types of results while searching for personalities, facilities, or equipment:

- References to personalities, facilities, or equipment obtained from terms stated explicitly in the information plan
- References that suggest **other** personalities, facilities, and equipment terms that are **not** explicitly listed in the information plan and therefore are **not** part of the original list of search terms

The FAC asks you to treat the references you retrieve in each of these situations differently. The references from the first situation are evaluated for relevance during this stage of the FAC. The references from the second situation will be evaluated during the “Assignment of Meaning” phase of the FAC.

### 7.3.2. Execute the Search Strategy

Once you’ve developed your initial search statements, you need to execute them in the IS&R systems that you identified in the information plan. The process of executing a search also includes examining the results of each search statement to determine whether the references obtained answer the questions “Are these the sorts of things I am looking for? Do they pertain to the intelligence issue?” In addition to reviewing the results to see if they are relevant, you can modify the search strategy so that you incorporate new terms, new resources, or to change details of the search.

What follows is an idealized approach to the acquisition of relevant information. You would modify this approach based on the features and limitations of each IS&R system you plan to use:

- Execute the most restrictive search statement first. That is, search on a single word, an explicit phrase, or the personality, facility, or equipment terms you identified in the information plan.
- Review the results of the initial search statements to identify and collect any relevant results. Examining the title, table of contents, and abstracts or summaries is a good way to determine whether a retrieved item is relevant. Are the results of the search related to the intelligence issue?
- Screen the relevant information to determine whether any alternate words or phrases exist for the concepts and ideas of interest. If you find new concepts or terms, record them in your search diary for future search statement development.
- Use the search diary **to list any terms related to personalities, equipment, or facilities associated with the search topic but not identified in the information plan.** You will evaluate and use these further during the assignment of meaning phase, which will be discussed in a subsequent section of the FAC.

- Evaluate your search statements and results. What was the ratio of relevant versus non-relevant information in the search results? Is your search strategy working?
- Execute the next least restrictive search statement. For example, if the search statement required that the words in a phrase be adjacent to each other, try searching them with the same sentence or within so many words of each other.
- Review and screen the results you obtained with the less restrictive search statement.
- Use the search diary to **record any new terms related to personalities, equipment, or facilities associated with the search topic but not identified in the information plan.** You will evaluate and use these terms further during the assignment of meaning phase, which will be discussed in a subsequent section of the FAC.
- Record any new search terms or phrases.
- Compare the amount of relevant information obtained with the current search statement as compared with the prior search statement. Consider the ratio of new relevant information acquired and the amount of non-relevant information obtained and make a judgment about continuing the search.
- Repeat the process until all search statements are executed or until little or no additional relevant information is being acquired.
- Repeat the process for all of the new words and phrases that you recorded in the search diary.

Continue the cycle as long as you are retrieving additional words and phrases, personalities, equipment, facilities, or any other relevant information.

One important reminder about information acquisition: your goal is to look for and select items that are broadly relevant. That is, your thinking about whatever you retrieve is focused on determining whether the results of your search pertain to the intelligence issue. At this point, you should not attempt to form deeper judgments about the information's meaning or value. These judgments will be made in later sections of the FAC.

Remember that the purpose of the information acquisition phase is to obtain information which bears upon the intelligence issue you are addressing. For this reason your initial quest for information will be, of necessity, the most sweeping retrieval performed in the course of your analysis. If the results you retrieve appear to be partially relevant, or if you are in doubt whether they are relevant, retain the results. This is critical because if you discard a document at this point, you have removed it from consideration during later analysis activities.

### **A NOTE ABOUT FEW OR NO RESULTS DURING INFORMATION ACQUISITION**

What should an information seeker do if a search produces few or no results? First, take a look at the basics of the search. Did you spell the search terms correctly? Does the topic area have alternate or foreign spelling that you failed to use? Did you select the correct IS&R systems for the topic area?

If the basics of the search were all correct, consider researching the topic area further in specialized thesauri, manuals, handbooks, subject headings in library resources, or other indexing tools to better understand the language associated with the topic. Repeat the search with any new terms you discover.

It is also possible that the nonexistence of references is real. Lack of results during a search can be informative: it may mean that a certain area of knowledge or the terminology associated with it is not well-developed. You may have to use search terms from a more general subject area in order to obtain relevant results.

Obtaining few or no results is an indicator to you that you need to seek assistance, re-think your search terms and search strategy, and try again.

#### **7.3.3. Determination that the Search is Complete**

It can be difficult to know when to stop when you are creating and executing a search. Both internal and external factors can contribute to your decision that “enough is enough” while searching. Internal factors can include a feeling that you’ve retrieved enough information to begin the next phase of analysis or an indication that the search terms or resource that you’re using are a dead end. Frustration or disgust with some aspect of the IS&R system you are using may make you want to cease searching, but time permitting you should persevere if more information is needed. External factors can include time constraints or other constraints imposed by your customer.<sup>88</sup>

No matter the reason, at some point you will conclude the information acquisition activities described in this section of the FAC. You may find it helpful to record your reasons for stopping a search on a topic or in a particular IS&R system for later reference.

#### **7.3.4. Acquiring and Managing Relevant Materials Identified During Searching**

As you conduct your search, you will identify relevant references and materials. You will need to develop an approach for organizing the materials you retrieve. Some analysts prefer to have their search results stored in digital format; other analysts prefer hard copy. As with other aspects of the FAC, we only suggest that an organizing approach is necessary – each analyst needs to develop a system for storing and handling retrieved results that works for him or her.

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<sup>88</sup> Prabha, C., Connaway, L. S., Olszewski, L., Jenkins, L. R. “What is Enough? Satisficing Information Needs.” *Journal of Documentation*, Vol. 63, No. 1, 2007, pp. 74-89.

An organizing approach can help you address another common information acquisition issue discussed in the information plan section. If you use multiple IS&R systems, you are highly likely to obtain the same information multiple times. Some of the results you obtain will be duplicates of the same information, repeated in different IS&R systems. This is a fairly common situation and one that you probably anticipate any time you use an IS&R system.

However, a different type of duplication may also exist in the results obtained with an IS&R system. That is, you may have information from the same source that is duplicated many times within the **same** IS&R system but within different reports. For example, you might retrieve 100 reports and find that they are from the exact same original HUMINT report from the same source. If you are not attentive to this form of duplication, you might think that your search had retrieved 100 independent references. In this case, lots of references are not equivalent to lots of information on a given topic.

A systematic approach to organizing the information you retrieve helps you identify and manage duplicates and weed out duplicate instances from within the same and different IS&R systems. Managing duplicates helps you develop a more realistic picture of the results of your search.

Depending on the IS&R system, the items you retrieve may only be abstracts or summaries of the original publication, image, or other type of material. In order to fully evaluate the retrieved references for relevance, you will have to obtain the original item in its entirety. You may find it very helpful to use your organization's information providers as a resource for locating, ordering, and managing the procurement of original materials.

## **7.4 Summary**

Information acquisition is not just a mechanical approach to obtaining information. You prepared yourself for information acquisition by learning a great deal about the intelligence issue and the customer's needs during the preceding FAC activities. Bringing this mental state to information acquisition allows you to be more attentive while constructing a search and evaluating the retrieved information for relevance to the intelligence issue.

In addition, information acquisition can be an opportunity for learning more about the intelligence issue as you encounter new concepts, terms, personalities, facilities, and equipment during searching and evaluating. We have emphasized throughout the FAC that working on an intelligence issue is an iterative process; the knowledge you gain during information acquisition can be a critical source of information for modifying the intelligence issue, analysis plan, or information plan.

Finally, dare we say it? It can be intensely interesting to be actively involved with looking for information related to the intelligence issue and evaluating it for relevance. The results you obtain during information acquisition can stimulate more cognitive engagement with the intelligence issue. The results certainly pave the way for a later FAC section: assignment of meaning to the information you retrieve.

## 7.5 Supplement 1: Boolean Searching, A Primer<sup>89</sup>

The contents of IS&R systems are usually searched according to the rules of computer database searching. The principles of Boolean logic form the basis for much of the database searching you do. Boolean logic is a description of the relationships that can exist among search terms. The name Boolean comes from the name of British-born Irish mathematician George Boole.

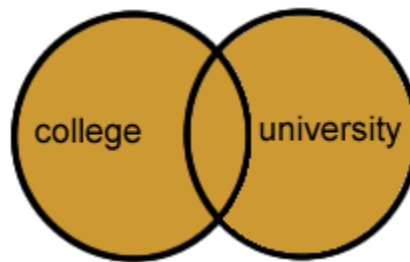
Boolean logic consists of three logical operators:

- OR
- AND
- NOT

Each logical operator can be visually described by using Venn diagrams. Venn diagrams were conceived around 1880 by John Venn to represent relationships. They commonly consist of overlapping circles with areas highlighted in different ways depending on the logical operator. In this section we use Venn diagrams to show the relationships between search terms when various logical operators are used.

### 7.5.1. OR Logic

The first operator we'll discuss is OR.



**Figure 1: OR Logic**

*Equivalent Search Statement: college OR university*

**Question: I would like information about college.**

In this search, we will retrieve records in which AT LEAST ONE of the search terms is present. We are searching on the terms **college** and also **university** since documents containing either of these words might be relevant.

This is illustrated by:

- the shaded circle with the word **college**, which represents all of the records that contain the word "college"
- the shaded circle with the word **university**, which represents all of the records that contain the word "university"
- the shaded overlap area, which represents all of the records that contain both "college" and "university"

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<sup>89</sup> Adapted from <http://www.internettutorials.net/boolean.asp> as viewed on 15 January 2010.

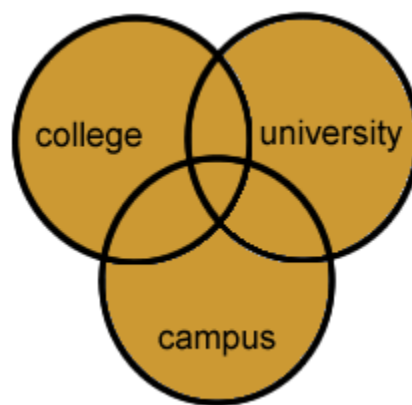
OR logic is most commonly used to search for synonymous terms or concepts.

Here is an example, using search results, of how OR logic works:

| Search Terms          | Results |
|-----------------------|---------|
| College               | 396,482 |
| University            | 590,791 |
| College OR University | 819,214 |

OR logic collates the results to retrieve all the unique records containing one term, the other term, or both terms.

As a general rule, the *more* terms or concepts combined with OR logic in a search statement, the *more* results retrieved.



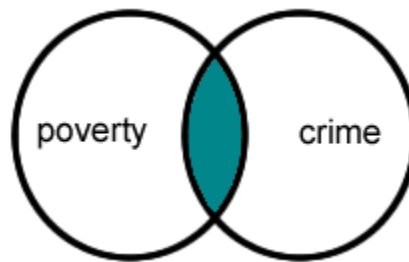
**Figure 2: OR Logic with Multiple Terms**

*Equivalent Search Statement: college OR university OR campus*

The search results for this example are:

| Search Terms                    | Results |
|---------------------------------|---------|
| College                         | 396,482 |
| University                      | 590,791 |
| College OR University           | 819,214 |
| College OR University OR Campus | 929,677 |

### 7.5.2. AND Logic



**Figure 3: AND Logic**

*Equivalent Search Statement: poverty AND crime*

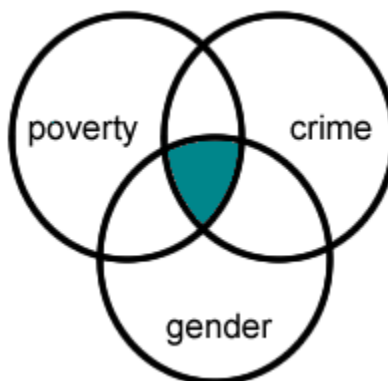
**Question: I'm interested in the relationship between poverty and crime.**

- In this search, we retrieve records in which BOTH of the search terms are present.
- This is illustrated by the shaded area overlapping the two circles representing all the records that contain both the word "poverty" and the word "crime."
- Notice that the search does not retrieve any records with only "poverty" or only "crime."

Here is an example, using search results, of how AND logic works:

| Search Terms      | Results |
|-------------------|---------|
| poverty           | 76,342  |
| crime             | 348,252 |
| poverty AND crime | 12,998  |

As a general rule, the *more* terms or concepts combined in a search with AND logic, the *fewer* results retrieved.



**Figure 4: AND Logic with Multiple Terms**

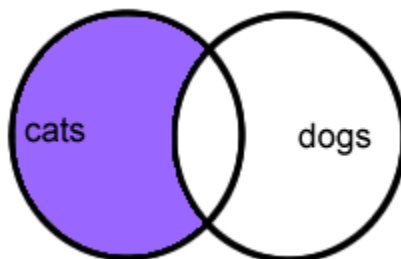
*Equivalent Search Statement: poverty AND crime AND gender*



The search results for this example are:

| Search Terms                 | Results |
|------------------------------|---------|
| Poverty                      | 76,342  |
| Crime                        | 348,252 |
| Poverty AND Crime            | 12,998  |
| Poverty AND Crime AND Gender | 1,220   |

### 7.5.3. NOT Logic



**Figure 5: NOT Logic**

*Equivalent Search Statement: cats NOT dogs*

**Question: I want information about cats, but I don't want to see anything about dogs.**

- In this search, we retrieve records in which ONLY ONE of the terms is present, the one we have selected by our search.
- This is illustrated by the shaded area with the word **cats** representing all the records containing the word "cats."
- No records are retrieved in the area overlapping the two circles where the word "dogs" appears, even if the word "cats" appears there too.

Here is an example, using search results, of how NOT logic works:

| Search Terms  | Results |
|---------------|---------|
| Cats          | 86,747  |
| Dogs          | 130,424 |
| Cats NOT Dogs | 65,223  |

NOT logic excludes records from your search results. Be careful when you use NOT: the term you do want may be present in an important way in documents that also contain the word you wish to avoid. For example, consider a Web page that includes the statement that "cats are smarter than dogs." The search illustrated above would exclude this document from your results.

### 7.5.4. Combined AND and OR Logic

**Question: I want information about the behavior of cats.**

**Equivalent Search Statement:** behavior AND (cats OR felines)

You can combine both AND and OR logic in a single search, as shown in the search statement above.

The use of parentheses in this search is known as forcing the order of processing. In this case, we surround the OR words with parentheses so that the search engine processes the two related terms (in this example, “cats” and “felines”) as a unit. The search engine uses AND logic to combine this result with the second concept (in this example, “behavior”). Using this method, we are assured that the semantically-related OR terms are kept together as a logical unit.

#### 7.5.5. Restrictive AND Variations

AND is a useful Boolean operator, but it can be too broad when you are trying to retrieve information on a specific topic. The two words connected by AND may be in the same document, but they may refer to completely different concepts and have no relationship to each other. To combat this issue, many IS&R systems have implemented what are known as *restrictive AND* or *proximity* operators for use during a search. Restrictive AND operators allow you to specify relationships between terms that are more precise than the fact that the two terms are in the same document.

For example, some IS&R systems use an operator known as NEAR. The characteristics of the IS&R system determine exactly what NEAR represents, but it usually means that the two words in the search statement are within a few words of each other in the document retrieved. Other restrictive AND operators can limit the search terms to the same paragraph or sentence, or require the terms to be adjacent to each other.

Table 2 shows how various restrictive AND operators affect the results of a sample search for ‘information storage and retrieval’ in an IS&R system.

**Table 2: Effects of Restrictive AND on Search Results**

| Operator            | Documents Retrieved | Term Occurrences |
|---------------------|---------------------|------------------|
| Exact phrase        | 57                  | 75               |
| Within 5 words      | 72                  | 136              |
| Within 10 words     | 83                  | 264              |
| Within 25 words     | 94                  | 709              |
| AND (same document) | 225                 | 252,782          |

As a general rule, the use of restrictive AND operators improves the relevance of your search. If you were searching the sample topic used for the chart, you would want to evaluate the results of each search statement to determine the best restrictive AND operator for your topic.

In order to effectively use the IS&R systems available to you during intelligence analysis, you need to familiarize yourself with the restrictive AND or proximity operators available in each system you plan to use. We encourage you to experiment with restrictive AND operators and inspect the results of searches with each operator to judge the relevance of what you retrieve.

## 8.0 ANALYSIS TECHNIQUES

### 8.1 Now What?

At this stage of the FAC, you have explored and developed your intelligence issue, established a plan for addressing the issue, developed a plan to acquire information relevant to the issue, acquired information based on that plan, and selected information relevant to the issue. Now you have a collection of information that you will use to develop an assessment that addresses the intelligence issue.

The prime question now is “from this collection of information, how do I create an assessment?” Thoughtful reading of the information is essential, but will not be enough. Rarely will the appropriate assessment be self evident in the information. The basis for developing your assessment will be there but it will be implicit, hidden, buried, and fragmented. From this collection of information and other information that you will acquire as you proceed, you must determine the meaning of both the individual pieces of information and the meaning of the aggregate information and meanings to create an explicit, credible, and coherent assessment.

Determining the meaning of information to create an assessment is the essence of analysis. We’ll provide information in this FAC section to assist you with developing and focusing your mental framework in preparation for this crucial aspect. We won’t ask you to prepare any written materials with this section. But, we’ll encourage you to mentally engage with the topics described that affect your thinking and reflect upon those topics, considering your own behaviors and capabilities. As you’ll see, a recurring theme about thinking is the importance of motivation and engagement relative to the topic.

In this section, you’ll see some familiar themes from the prior FAC sections, “Analysts as Individuals” and “Thinking about Thinking.” We’ll elaborate upon many of the concepts introduced in that section. One of these is “thinking dispositions.” The nature of your thinking dispositions is closely related to your motivation and engagement. It is essential for you to be keenly aware of these concepts about thinking as you embark upon the Assignment of Meaning described in the next section.

As we stated in the “Introduction to the FAC” section, Kent identifies two steps after all the information has been acquired:

- Critical evaluation of the data thus assembled. (Step 4)
- Study of the evaluated data with the intent of finding some inherent meaning. (Step 5)<sup>90</sup>

Evaluating information and determining the meaning of information has always been an integral part of the practice of intelligence analysis. However, as the volume of information has increased, the issues have become more complex and the meanings more subtle. Determining meaning has rapidly become more burdensome and cognitively difficult. Consequently, there has been an increasing amount of attention in the intelligence literature on understanding traditional analysis methods and techniques, as well as the development of new methods and techniques to supplement or replace what has been used.

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<sup>90</sup> Kent, S. (1949). *Strategic Intelligence for American World Policy*, Princeton University Press, Princeton, NJ, 1949, pp. 157-158.

There are many traditional and new analysis techniques for determining the meaning of information. In the “Analysts as Individuals” section, we emphasized that to improve your judgments about the meaning of information you must develop a realistic appraisal of your cognitive abilities and the content of your mind. As stated previously, the information provided in this section is to aid you with this.

Because the intelligence literature focuses on new techniques, we’ll also provide you information about some of those techniques. These techniques are often referred to as structured analytic methods or techniques. In this FAC section we’ll refer to those approaches and techniques identified in the intelligence literature as SATs. We’ll also provide information for you to consider in choosing appropriate analysis approaches and techniques to aid you in evaluating and assigning meaning to information, both individual pieces of information and the aggregation of the information. As we’ll explain later, with few exceptions, the SATs identified in the intelligence literature are not applicable to assigning meaning to individual pieces of information. They are largely focused on dealing with the aggregation of information.

To begin our discussion, we’ll start with:

- The role of SATs as described in the intelligence literature

This discussion will be followed by information on:

- The cognition of analysis, including the functions and types of thinking that occur in the cognitive domain, as well as cognitive factors that impact the quality of thinking during analysis
- SATs and the cognition of analysis

In subsequent sections of the FAC, we’ll introduce additional analytic approaches that we recommend you use to organize your information and assign meaning to it, marshal your information, and formulate and evaluate hypotheses.

## 8.2 SATs

There are various definitions for what constitutes a SAT and much debate about the value of using them, both for individual analysts and for analytic groups. While the debate continues, there has been little systematic research on the application of SATs to intelligence analysis. Opinions vary, but many agree that use is not widespread among analysts.

Even the proponents of SATs acknowledge that the most frequently used way of doing analysis is:

...the intuitive method (also known as "read a bunch of stuff, think about it for a bit and then write something") remains the most popular method for producing intelligence analysis...<sup>91</sup>

...the traditional CIA method of analysis.....Read as much as you have time to read that day; Think about it and suck an answer out your thumb; Write it down in as crisp a manner as possible.<sup>92</sup>

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<sup>91</sup>Wheaton, K. *Top 5 Intelligence Analysis Methods (list)*. 2008. Available: <http://sourcesandmethods.blogspot.com/2008/12/top-5-intelligence-analysis-methods.html>, pp. 1.

<sup>92</sup>Marrin, S. "Intelligence Analysis: Structured Methods or Intuition?" *American Intelligence Journal*, Vol. 25, No. 1, 2007, p. 9.

Traditional intelligence assessment methodology has always been historiographical<sup>93</sup>...strictly descriptive...<sup>94</sup>

Because of perceived shortcomings in the results of intuitive analysis, the amount of writing and development focused on SATs has grown. How are such techniques defined? One view is that “they are those techniques which have a formal or structured methodology that is visible to external observers.”<sup>95</sup> A different view is that to be useful for professional purposes, methods “are processes that produce or substantially help the analyst produce *estimative* results”. According to this view, often “method” is used informally by analysts to include ways to improve thinking.<sup>96</sup> Others see SATs and methodology use as the application of the scientific method to intelligence analysis.<sup>97</sup>

According to the proponents, the benefits associated with the use of SATs are:

SATs are the *enablers* of collaboration. They are the *process* by which effective collaboration occurs.<sup>98</sup>

The primary value of analytic techniques or structured methods is that they provide a way to account for the analytic judgment; an analytic “audit trail” as it were.<sup>99</sup>

From this diversity of opinions, you can correctly infer that some SATs are more suitable for certain types of analysis or are more pertinent depending on the issues being addressed. As an analyst, you are the intended beneficiary of these many SATs and can select those that will benefit your analysis from all of those available.

What should you consider when trying to decide if you should use a particular SAT? First, an understanding of the characteristics of the intelligence issue is essential. Most intelligence issues relate to a future state of affairs; but is the future defined as tomorrow, next month, next year, or next decade? Also, some intelligence issues deal with the actions and decisions of individuals, groups, nations or international entities, and these characteristics may affect your choice of SATs. While understanding the nature of the issue is necessary, it is not enough to make an appropriate choice about the SATs to use. To select appropriate SATs, you should also consider whether the SAT helps you assign meaning to individual pieces of information, the aggregation of information, or both. We will return to this important topic at the end of this FAC section. In addition, it is essential to consider the nature of the cognition that you are trying to aid by using the SAT. This requires an understanding of the cognition associated with analysis, as well as what aspects of cognition are aided by specific SATs.

The following discussion elaborates on the information provided in the “Thinking about Thinking” section of the FAC and discusses the cognition of analysis to (1) help prepare you for

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<sup>93</sup> Historiography is the history of history, the aspect of history and of semiotics that considers how knowledge of the past, either recent or distant, is obtained and transmitted.

<sup>94</sup>Smith, T.J. “Predictive Warning: Teams, Networks, and Scientific Method,” in *Analyzing Intelligence: Origins, Obstacles, and Innovations*, eds. R.Z. George & J.B. Bruce, Georgetown University Press, Washington, D.C., 2008, p. 269.

<sup>95</sup>Marrin p. 7.

<sup>96</sup>Wheaton p. 1-2.

<sup>97</sup>Smith p. 268.

<sup>98</sup>Heuer, R.J. *The Evolution of Structured Analytic Techniques*. Speech presented to the National Academy of Science, Washington, D.C, December 8, 2009, p. 3.

<sup>99</sup>Marrin p. 7.

the assignment of meaning that will occur in the next FAC section, and (2) provide information for you consider in choosing SATs to use in your analysis.

### 8.3 Cognition of Analysis

As we introduced in the FAC sections “Analysts as Individuals” and “Thinking about Thinking,” a very large body of literature exists on the topic of thinking. Since man created written records, philosophers and scientists have struggled with the concept of what thinking is and how thinking is influenced by many factors. For our purposes the following definition of thinking relates to doing intelligence analysis:

Thinking, in its broadest sense, is the search for meaning. It consists either of finding meaning assumed to exist already or of making meaning out of something that has no readily apparent meaning. It is, as John Dewey wrote years ago, "that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in the latter upon the ground or warrant of the former." Thinking, in short, is the mental process by which individuals make sense out of experience.<sup>100</sup>

To provide more understanding about thinking, next we'll discuss the cognitive domain functions, types of thinking in the cognitive domain, and cognitive factors that affect thinking quality.

#### 8.3.1. Cognitive Domain Functions

While much disagreement continues, general agreement exists that the **cognitive domain** as applied to decision making, problem solving or assigning meaning consists of knowledge, comprehension, application, analysis, synthesis, and evaluation.<sup>101</sup> However, this description of the cognitive domain does not discuss the functions that provide input to the cognition, namely reading and learning. These are the precursor functions used to establish the knowledge used in the cognition.

If we list the cognitive domain functions (i.e., reading, learning, knowledge, comprehension, application, analysis, synthesis, and evaluation), it conveys the impression of a linear step-by-step process. In practice that is not the way we generally think.

...although we can isolate and hierarchically order separate levels of cognitive processing that are active in reading, such as recognition, recall, comprehension, application, analysis, synthesis, and evaluation (RAND, 2002), the reader certainly does not experience them as separate and sequenced. Rather, they are more likely to occur simultaneously, in an overlapping and interactive fashion.<sup>102</sup>

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<sup>100</sup>Beyer, B.K. *Practical Strategies for the Teaching of Thinking*, Allyn and Bacon, Boston, MA, 1987, p. 16.

NOTE: The terms “fact” as used by Dewey and “data” as used by Kent have different meanings than the contemporary meaning assigned to these words. Their intent can now be best expressed by substituting the word “information.”

<sup>101</sup>Alexander, P.A., Dinsmore, D.L., Fox, E., Grossnickle, E.M., Loughlin, S.M., Maggioni, L., Parkinson, M.M. & Winters, F.I. *Higher-Order Thinking and Knowledge: Domain-General and Domain-Specific Trends and Future Directions*. Undated Manuscript, pp. 4.

<sup>102</sup>Fox, E. & Alexander, P.A. "Text Comprehension: A Retrospective, Perspective, and Prospective," in *Handbook of Research on Reading Comprehension*, eds. S.E. Israel & G.G. Duffy, Routledge, New York, NY, 2009, p 234.

In addition to being overlapping and interactive, each function is dependent on the results of the antecedent functions.<sup>103</sup> This is an extremely important finding that has significant ramifications for the assignment of meaning that we will discuss in subsequent FAC sections.

As mentioned earlier, little agreement exists on how thinking is done, but there is growing agreement on the attributes of the thinker and how these relate to the quality of what is done. An important question to consider is how the SATs relate to improving these attributes. To better understand the cognitive attributes associated with quality thinking and the potential utility of various SATs, let's take a closer look at the "input functions" of reading and learning.

**Reading:** Reading competence has received considerable attention for the last 30-40 years. Most of this attention has been focused on teaching reading to children and youths. This dominant focus on children may imply that the majority of adults can read competently. Unfortunately, other research results do not support this assumption. Differences in reading competence have been measured in college students.<sup>104</sup> Others have written on changes in reading competence across one's lifespan,<sup>105</sup> as well as the importance of knowledge, interests, and strategies to achieve expert-level reading competence.<sup>106</sup> Thus, one cannot assume that all analysts can and do read with high levels of comprehension. Since the overwhelming majority of information used in analysis requires reading, the potential impact on subsequent analysis is consequential. To help you reflect upon your own cognition and behavior, we suggest that you consider the following descriptions relative to your reading.

So what is a competent reader?

...the proficient adult reader can read a variety of materials with ease and interest, can read for varying purposes, and can read with comprehension even when the material is neither easy to understand nor intrinsically interesting.<sup>107</sup>

What are the attributes of a competent reader? Generally three areas have been identified that are instrumental in reading competence.<sup>108</sup>

- Linguistic and Metalinguistic Knowledge – "Because reading requires access to and interpretation of written language, competent readers must be able to "break the code"...entails the individual's cognizance of language concepts and conventions...linguistic and metalinguistic **knowledge** must be sufficiently developed in readers to permit them to decode and encode print rapidly and accurately..." [emphasis added]

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<sup>103</sup>Beyer, B.K.p. 30.

<sup>104</sup>Fox, E., Dinsmore, D.L., Maggioni, L. & Alexander, P.A. "Factors Associated with Undergraduates' Success in Reading and Learning from Course Texts", *2009 Annual Meeting of the American Educational Research Association*, San Diego, CA, April 13-17, 2009.

<sup>105</sup>Alexander, P.A. *The Path to Competence: A Lifespan Developmental Perspective on Reading* 2006. Manuscript.

<sup>106</sup>Fox, E., Maggioni, L., Dinsmore, D.L. & Alexander, P.A. "The Multi-Layered Reading Goals of Expert Readers: Bridging between Knowledge, Interest, and Strategy use", *2008 Annual Meeting of the American Educational Research Association*, New York, NY, March 24-28, 2008.

<sup>107</sup>Snow, C.E. *Reading for Understanding: Toward a Research and Development Program in Reading Comprehension*, RAND Corporation, Santa Monica, CA, 2002, p. xiii.

<sup>108</sup>Alexander, P.A., Garner, R., Sperl, C.T. & Hare, V.C. "Fostering Reading Competence in Students with Learning Disabilities," in *Learning about Learning Disabilities*, ed. B.Y.L. Wong, 2nd edn, Academic Press, San Diego, CA, 1998, pp. 343-349.

- Conceptual Understanding - "...the meaning that students construct from text is directly related to the framework of conceptual **knowledge** that they bring to that text." [emphasis added]
- Strategic Ability – "To achieve competence in reading, learners must function with an **awareness of their behavior, monitor the cognitive** aspects of their performance, **establish their goals** for learning, as well as regulate their efforts towards those goals...competent readers must be active, **strategic text processors...**" [emphasis added]
- Motivation for Learning – "...competence in reading...is as much an investment of the spirit as it is the mind..." Requiring "...a suitable **goal...**, an **interest** in the topic or task at hand..., a **belief** in themselves..., a sense of self-control or self-determination..." [emphasis added]

Some of the attributes that affect reading competence are the same ones that positively affect other functions in the cognitive domain, such as knowledge, awareness of behavior, goals, and motivation. Our review indicates that the SATs do little to directly improve reading ability. But, they may help you generally improve your knowledge, the content of your mind, which should positively affect subsequent reading.

**Learning:** Reading has received lots of attention, but it pales in comparison to the attention on learning. Many facets of what determines the ability to learn have been investigated. Some of these are the same as for reading, namely knowledge and strategic abilities/processes. Many of the others are familiar and have received lots of attention in the popular press, such as teacher quality, classroom size, and teacher to student ratios. While it hasn't received much publicity, beliefs about the nature of knowledge, i.e., epistemological beliefs, play a critical role in learning.<sup>109 110</sup>

What are epistemological beliefs? This is one description:

...CERTAINTY of knowledge, ranging from knowledge is absolute to knowledge is tentative...

...STRUCTURE of knowledge, ranging from knowledge is organized as isolated bits and pieces to knowledge are organized as highly interwoven concepts...

...SOURCE of knowledge, ranging from knowledge is handed down by authority to knowledge is derived through reason...

...CONTROL of knowledge acquisition, ranging from the ability to learn is fixed at birth to the ability to learn can be changed...

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<sup>109</sup>Schommer, M. & Walker, K. "Are Epistemological Beliefs Similar Across Domains?" *Journal of Educational Psychology*, Vol. 87, No. 3, 1995, pp. 424-432.

<sup>110</sup>Harteis, C., Gruber, H. & Lehner, F. "Epistemological Beliefs and their Impact on Work, Subjectivity, and Learning," in *Work, Subjectivity and Learning: Understanding Learning through Working Life*, eds. S. Billett, T.J. Fenwick & M. Somerville, Springer, Dordrecht, The Netherlands, 2006, pp. 123-140.



...SPEED of the knowledge acquisition, ranging from knowledge is acquired quickly to not-at-all to knowledge is acquired gradually.<sup>111</sup>

Epistemological beliefs at the lower end of the continuum (e.g., knowledge is absolute, organized in isolated bits and pieces, handed down by authority, with the ability to learn fixed at birth) are characterized as naïve beliefs. Those beliefs at the upper end of the continuum (e.g., knowledge is tentative, organized as interwoven concepts, derived through reason, with an ability to learn that can change) are characterized as sophisticated beliefs.<sup>112</sup> In general, beliefs become more sophisticated with age and education.<sup>113</sup>

The fact that epistemological beliefs can have such a significant effect on one's learning capacity, in contrast with other things normally associated with learning such as intelligence or memory, may seem surprising. But, perhaps it shouldn't be since we discussed in *Analysts As Individuals, Knowing Yourself*, that one's ability is more affected by praise of effort if you believe that intelligence is malleable than if you believe it is fixed.

SATs do not address epistemological beliefs. As with reading, the SAT may augment your knowledge in a broad way, improving the content of your mind, and facilitating subsequent learning. We will return to the topic of epistemological beliefs later in this FAC section.

### 8.3.2. Types of Thinking in the Cognitive Domain

As mentioned earlier, the cognitive domain is where meaning is assigned to information, problems are solved, or decisions are made. Again, while little agreement exists on how this thinking is accomplished, some agreement has been reached that three types of thinking result in "quality" thinking and problem solving: critical thinking, reflective thinking, and higher order thinking. These three types of thinking occur in all of the cognitive domain functions (i.e., reading, learning, knowledge, comprehension, application, analysis, synthesis, and evaluation). They are of interest and importance to our consideration of the cognition of analysis and SATs. After we review these three types of thinking, we'll summarize the contribution of SATs to critical, reflective, and higher order thinking.

*Critical Thinking:* The intelligence literature is replete with views that using critical thinking will resolve most if not all the issues associated with the quality of analysis. Several intelligence organizations have specific training programs directed at developing critical thinking skills in analysts.

What is critical thinking? The definitions are numerous and not always consistent with one another, but here is the one developed by a panel of experts in 1990.

We understand critical thinking to be **purposeful**, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the

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<sup>111</sup>Schommer, M. "An Emerging Conceptualization of Epistemological Beliefs and their Role in Learning," in *Beliefs about Texts and Instruction with Text*, eds. R. Garner & P.A. Alexander, L. Erlbaum, Hillsdale, NJ, 1994, p. 28.

<sup>112</sup>Schommer p. 29.

<sup>113</sup>Schommer pp. 34-35.

evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. CT is essential as a tool of inquiry.<sup>114</sup> [emphasis added]

These experts also said:

The ideal critical thinker is habitually inquisitive, **well-informed**, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, **orderly** in complex matters, **diligent** in seeking relevant information, reasonable in the selection of criteria, **focused** in inquiry, and **persistent** in seeking results which are as precise as the subject and the circumstances of inquiry permit.<sup>115</sup> [emphasis added]

The experts then developed a listing of thinking dispositions, shown in Supplement 1 to this section, and cognitive skills, shown in Supplement 2 to this section, that are associated with critical thinking. You may recall that we discussed thinking dispositions in “Analysts as Individuals, Thinking about Thinking.” Supplement 1 complements that information. The listings in the supplements are largely descriptive, focusing on what to do, not how to do it. However, we recommend thoughtful consideration of your own behavior with regards to the cognitive skills and thinking dispositions we describe in the supplements. Doing so provides you with insight into your thinking; this is useful preparation for the next section of the FAC, “Assignment of Meaning.”

**Reflective Thinking:** While the terms critical thinking and reflective thinking are often treated as synonyms, the proponents of reflective thinking attribute major differences between the two. Their view is that critical thinking is more focused on the solution of well-structured problems, while reflective thinking is better suited for solving ill-structured problems. This distinction is pertinent the topic of intelligence analysis.

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<sup>114</sup>Facione, P.A. *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. Research Findings and Recommendations*. American Philosophical Association, Newark, DE, 1990, p. 3.

<sup>115</sup> Facione p. 3.

## A NOTE ABOUT PROBLEM SOLVING

In the FAC section “Developing Intelligence Issue Statements” we implied that addressing an intelligence issue was problem solving, but we didn’t make it explicit. This language was deliberate. We wanted to avoid an early mindset that intelligence issues = problems since some think problems usually have “right” answers. We didn’t want to imply that a “right” answer exists for every intelligence issue. Finding a single right answer is a very simplified view of problems and their solutions, which could influence how you understand and address the intelligence issue. In reality, problems have a great diversity of character; for many, no “right” answer exists.

Using this more complex view of problems, understanding the problem is what we discussed about understanding the intelligence issue. In general, problems are categorized as either well-structured or unstructured. Well-structured problems can be described with a high degree of completeness, can be solved with a high degree of certainty, and general agreement exists on a correct solution. In contrast, unstructured problems “cannot be described with a high degree of completeness or solved with a high degree of certainty” and “it is sometimes difficult to determine when a solution has been reached.”

Intelligence issues can be categorized as either well-structured or unstructured problems. For example, determining the order of battle of a foreign country is a structured problem, but assessing the actions of a foreign government in 2020 is an unstructured problem. So analysis performed on an intelligence issue is indeed a form of problem solving. Relating intelligence analysis to this more complex view of problem solving is important since a substantial amount of research has been performed on the factors that affect performance on problem solving. Consequently, the results of such research can provide information on the selection of methods and techniques that will aid analysis.

As mentioned in earlier sections, the FAC is focused on understanding both capabilities and intentions as shaped by human decisions and actions. This type of analysis is usually associated with unstructured problems/intelligence issues so the research results on solving such problems are especially pertinent to the purpose of this section.

\* King, P.M. & Kitchener, K.S. *Developing Reflective Judgment: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults*, Jossey-Bass Publishers, San Francisco, CA, 1994, pp. 10-11.

The second difference between critical thinking and reflective thinking is the role of what some refer to as epistemological assumptions.<sup>116</sup> On closer examination, epistemological assumptions are the same as what others call epistemological beliefs. As with learning, one’s ability for

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<sup>116</sup>King, P.M. & Kitchener, K.S. *Developing Reflective Judgment: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults*, Jossey-Bass Publishers, San Francisco, CA, 1994, p. 8.

reflective judgments relates to one's state of epistemological beliefs. Naïve beliefs result in poor judgments and sophisticated beliefs produce more nuanced judgments. Other research supports the concept that the ability to solve unstructured or ill-structured problems depends on epistemological beliefs.<sup>117 118</sup>

**Higher Order Thinking:** As with critical thinking, many definitions are used for higher order thinking. We found the following the most informative.

Higher-order thinking is the **mental engagement** with ideas, objects, and situations in an analogical, elaborative, inductive, deductive, and otherwise transformational manner that is indicative of an orientation toward knowing as a complex, **effortful**, generative, evidence-seeking, and **reflective** enterprise.<sup>119</sup> [emphasis added]

Basically, higher order thinking occurs in all of the functions we discussed within the cognitive domain. Many of the cognitive skills associated with higher order thinking are the same as those for critical thinking. However, personal attributes are given more attention in the discussion of higher order thinking.

Precisely because higher-order thinking, as we and others have defined it, requires effortful and unconventional processing, it will not occur unless individuals intend to **engage mentally** at the requisite level. Thus, any conception of higher-order thinking must accept the necessary **willingness** of the individual to think deeply, analytically, and in an otherwise non-routine manner.<sup>120</sup> [emphasis added]

Again, we see the importance being motivated and willing to engage with ideas, as we did with reading and learning.

In summary, the following are important for all three types of thinking that affect the quality of thinking and problem solving: the state of your epistemological beliefs; having knowledge and goals; and being well-informed, purposeful, orderly, engaged, and persistent. These are also important for reading and learning. Our review of the SATs indicates that they can help you be more orderly in your review of the information, but SATs do not address the state of your epistemological beliefs. In addition, much as for reading and learning, the other benefits are indirect; that is, the SATs may generally improve your knowledge which should improve all of your analytic endeavors.

### **8.3.3. Cognitive Factors that Affect Thinking Quality**

Our starting premise was that an understanding of the cognition associated with intelligence analysis is essential for you to consider and select appropriate SATs to use as you assign meaning to information. While there are many unknowns about how people think and various terms are used, the preceding discussion indicates the following factors are important.

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<sup>117</sup>Harteis, C., Gruber, H. & Lehner, F. "Epistemological Beliefs and their Impact on Work, Subjectivity, and Learning," in *Work, Subjectivity and Learning: Understanding Learning through Working Life*, eds. S. Billett, T.J. Fenwick & M. Somerville, Springer, Dordrecht, The Netherlands, 2006, p. 126.

<sup>118</sup>Schommer, M. "Synthesizing Epistemological Belief Research: Tentative Understandings and Provocative Confusions," *Educational Psychology Review*, Vol. 6, No. 4, 1994, p. 305.

<sup>119</sup>Alexander, P.A., Dinsmore, D.L., Fox, E., Grossnickle, E.M., Loughlin, S.M., Maggioni, L., Parkinson, M.M. & Winters, F.I. *Higher-Order Thinking and Knowledge: Domain-General and Domain-Specific Trends and Future Directions*. Manuscript, p. 11.

<sup>120</sup>Alexander p. 22.

- Knowledge
- Thinking dispositions
- Cognitive skills
- Motivation and engagement
- Epistemological beliefs

These factors correlate very well with the propensities of the reflective and algorithmic minds responsible for Type 2 processing (deep thinking) that we discussed in “Analysts as Individuals” and “Thinking about Thinking.”

As we discussed, the propensities of the reflective mind relate to thinking dispositions and the inputs to the mindware. These mindware inputs include:

- Knowledge
- Beliefs
- Goals

The algorithmic mind includes the strategies for processing knowledge, referred to as procedural knowledge.

To summarize, both the list of factors that impact the quality of thinking and the inputs to the reflective mind have some common themes. Both lists contain knowledge. Strategies for processing knowledge relate closely to cognitive skills and thinking dispositions. Goals relate to one’s motivation and engagement.

While the factor, beliefs, is not included on our initial list of cognitive factors affecting thinking, for thousands of years the philosophers have been arguing about the commonality and difference between knowledge and beliefs, resulting for some in interchangeable use of the two terms. Based on these discussions about knowledge and beliefs, it is appropriate to add beliefs to our list of factors that have a major impact on the quality of thinking. Distilling the two lists to a set of primary cognitive factors that impact thinking quality, we have:

#### Cognitive Factors that Impact Thinking Quality

- Knowledge
- Beliefs
- Goals
- Thinking dispositions
- Cognitive skills
- Epistemological beliefs

As you consider which SATs to use, you should evaluate the SATs against these factors to determine which ones aid may analytic cognition and how they improve it.

In addition, we mentioned the importance of the problem solving literature in your consideration of SATs. This literature emphasizes the nature of the problem (i.e., well-structured or ill-structured). Many SATs attempt to add structure to problems. If problems are relatively well-structured, this may be useful. However, if they are very ill-structured, adding a structure that does not reflect the essence of the problem may be counterproductive. The value of using the

SAT may then be related to how useful it is to treat your issue in a more structured way. The literature also emphasizes the importance of understanding the problem to be solved, which is the goal of thinking.

#### **8.4 Categorization of SATs Based on the Cognition of Analysis**

As mentioned at the beginning of this section, a great deal of emphasis has been placed on the use of SATs. Johnston states that “Although well over 160 analytic methods are available to intelligence analyst, few methods specific to the domain of intelligence analysis exist.”<sup>121</sup> However, he did not specifically identify these 160 plus techniques nor has the intelligence literature. Both CIA and DIA have training courses on SATs.

Many categorizations of SATs have been done. For example, Richards Heuer describes eight categories: Idea Generation, Scenarios and Indicators, Hypothesis Generation and Testing, Assessment of Cause and Effect, Challenge Analysis, Conflict Management, and Decision Support. Heuer’s recent book describes 50 different techniques.<sup>122</sup> Based on our summarization of the cognitive factors that impact thinking, we have grouped a sampling of SATs from the intelligence literature (i.e., DIA, CIA courses, and some others) into four general categories in Supplement 3 to this section to aid you in considering the use of SATs. Of course, there is not a direct one-for-one mapping of the cognitive factors and the SATs. In addition, many SATs address multiple aspects of thinking and some are designed for individual use, some for group use.

- Pattern Recognition: Arraying the information so as to enhance the recognition of patterns or relationships
- Changing or Validating the Mindware: Challenging the analyst to rethink the basis upon which he or she has made judgments
- Diverse Mindware: Adding a diversity of knowledge and beliefs to the analysis process
- Predictive: Predicting future events

#### **8.5 Assigning Meaning: Individually and In the Aggregate**

A key provision of the FAC is assigning meaning to all relevant information, both individually and in the aggregate. Consequently, the usefulness of the SATs for assigning meaning to individual pieces of information as well as to the aggregation of information becomes a key consideration in your consideration of the SATs.

Assigning meaning to individual pieces of information relates to what Kent says should occur after all the relevant information has been acquired: critical evaluation of the data thus assembled (step 4). In discussing Step 4, Kent emphasizes the need to evaluate the individual information

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<sup>121</sup>Johnston, R. *Analytic Culture in the US Intelligence Community: An Ethnographic Study*, Center for the Study of Intelligence, Washington, D. C., 2005, p. 72.

<sup>122</sup>Heuer, R.J. & Pherson, R.H. *Structured Analytic Techniques for Intelligence Analysis*, CQ Press College, Washington, D.C., 2010.

before it becomes part of the aggregation of information from which a hypothesis will eventually emerge.<sup>123</sup>

With a few exceptions, in the intelligence literature most SATs are discussed in terms of evaluating the aggregation of information, not the individual pieces of information. During your evaluation of the individual pieces of information, you will engage in all of the cognitive functions (i.e., reading, learning, knowledge, comprehension, application, analysis, synthesis, and evaluation). Because most SATs are not discussed for use on the individual pieces of information, a major portion of your cognition during analysis is not addressed. Conceptually though, some of the SATs could be used in your evaluation of the individual pieces of information in relationship to one another. Those SATs that aid you with pattern recognition (e.g., developing timelines) are good examples.

The other three categories of SATs (Changing or Validating the Mindware, Diverse Mindware, and Predictive) are mostly applicable to the next step outlined by Kent: study of the evaluated data with the intent of finding some inherent meaning (Step 5). Step 5 refers to your assignment of meaning to the aggregation of the information. You will also engage in all of the cognitive functions as you assign of meaning to the aggregation of information.

You should also consider that some SATs do not focus on the individual analyst as he or she reviews the set of relevant information (both individual pieces and the aggregation). Instead, these SATs more generally address the general state of mind of the analysts as they work in groups together (e.g., those in the Diverse Mindware category).

## 8.6 Summary

This section has provided you with additional information about thinking to assist you as you prepare to assign meaning to the information associated with your intelligence issue. Research indicates that the cognitive factors identified can impact the quality of your thinking.

Consequently, as you do your analysis it is important for you to deliberately consider the state of your **knowledge**, your **beliefs** and **goals**, the **thinking dispositions** you use to approach your analysis, and your overall beliefs about the nature of knowledge (**epistemological beliefs**). As we introduced in the “Analysts as Individuals” section, deliberate consideration and reflection about your thinking throughout your analysis are essential to improve your judgments about the meaning of information.

We have also discussed the increasing attention in the intelligence literature on the role of SATs. Proponents think that they will improve the quality of analysis. However, little has been done to systematically assess the potential benefits of these SATs. Whether SATs will benefit you in your particular situation is something that you should consider on a case-by-case basis. This section has provided you with background information about analysis and cognition intended to aid you as you consider the use of SATs or select SATs to use on a particular intelligence issue. Key factors you should consider are: the nature of the intelligence issue, how the SAT aids the cognition of analysis, if you are working individually or in a group (or both), and whether you want to use the SAT to assign meaning to individual pieces of information or the aggregation of information.

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<sup>123</sup>Kent, S. *Strategic Intelligence for American World Policy*, Princeton University Press, Princeton, NJ, 1949, p. 169.

The preceding review of the cognition of analysis indicates that while some SATs may improve the ability to structure or deal with the information in a more orderly way, generally they provide only indirect benefits to aid your overall development of knowledge. Since not many SATs address assigning meaning to the individual pieces of information, the next FAC section Assignment of Meaning will discuss this subject. Once the individual pieces of relevant information have been evaluated, the use of additional analysis techniques and methods for the aggregated set of evaluated relevant information will be described in more detail in subsequent sections of the FAC.



## 8.7 Supplement 1: Thinking Dispositions<sup>124</sup>

### APPROACHES TO LIFE AND LIVING IN GENERAL:

- inquisitiveness with regard to a wide range of issues,
- concern to become and remain well-informed,
- alertness to opportunities to use critical thinking,
- trust in the processes of reasoned inquiry,
- self-confidence in one's own abilities to reason,
- open-mindedness regarding divergent world views,
- flexibility in considering alternatives and opinions
- understanding of the opinions of other people,
- fair-mindedness in appraising reasoning,
- honesty in facing one's own biases, prejudices, stereotypes, or egocentric tendencies,
- prudence in suspending, making or altering judgments,
- willingness to reconsider and revise views where honest reflection suggests that change is warranted.

### APPROACHES TO SPECIFIC ISSUES, QUESTIONS, OR PROBLEMS:

- clarity in stating the question or concern,
- orderliness in working with complexity,
- diligence in seeking relevant information,
- reasonableness in selecting and applying criteria,
- care in focusing attention on the concern at hand,
- persistence though difficulties are encountered,
- precision to the degree permitted by the subject and the circumstances.

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<sup>124</sup> Extracted from Facione, P.A. *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. Research Findings and Recommendations*. American Philosophical Association, Newark, DE, 1990, p. 25.

## **8.8 Supplement 2: Cognitive Skills<sup>125</sup>**

### **8.8.1. Interpretation**

To comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures or criteria.

#### ***Categorization:***

- to apprehend or appropriately formulate categories, distinctions, or frameworks for understanding, describing or characterizing information.
- to describe experiences, situations, beliefs, events, etc. so that they take on comprehensible meanings in terms of appropriate categorizations, distinctions, or frameworks.

For example: to recognize a problem and define its character without prejudice to inquiry; to determine a useful way of sorting and sub-classifying information; to make an understandable report of what one experienced in a given situation; to classify data, findings or opinions using a given classification schema.

#### ***Decoding Significance:***

- to detect, attend to, and describe the informational content, affective purport, directive functions, intentions, motives, purposes, social significance, values, views, rules, procedures, criteria, or inferential relationships expressed in convention-based communication systems, such as in language, social behaviors, drawings, numbers, graphs, tables, charts, signs and symbols.

For example: to detect and describe a person's purposes in asking a given question; to appreciate the significance of a particular facial expression or gesture used in a given social situation; to discern the use of irony or rhetorical questions in debate; to interpret the data displayed or presented using a particular form of instrumentation.

#### ***Clarifying Meaning:***

- to paraphrase or make explicit, through stipulation, description, analogy or figurative expression, the contextual, conventional or intended meanings of words, ideas, concepts, statements, behaviors, drawings, numbers, signs, charts, graphs, symbols, rules, events or ceremonies.
- to use stipulation, description, analogy or figurative expression to remove confusing, unintended vagueness or ambiguity, or to design a reasonable procedure for so doing.

For example: to restate what a person said using different words or expressions while preserving that person's intended meanings; to find an example which helps explain something to someone; to develop a distinction which makes clear a conceptual difference or removes a troublesome ambiguity.

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<sup>125</sup> Extracted from Facione pp. 13-19.

### 8.8.2. Analysis

To identify the intended and actual inferential relationships among statements, questions, concepts, descriptions or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions.

#### *Examining Ideas:*

- to determine the role various expressions play or are intended to play in the context of argument, reasoning or persuasion.
- to define terms.
- to compare or contrast ideas, concepts, or statements.
- to identify issues or problems and determine their component parts, and also to identify the conceptual relationships of those parts to each other and to the whole.

For example: to identify a phrase intended to trigger a sympathetic emotional response which might induce an audience to agree with an opinion; to examine closely related proposals regarding a given problem and to determine their points of similarity and divergence; given a complicated assignment, to determine how it might be broken up into smaller, more manageable tasks; to define an abstract concept.

#### *Detecting Arguments:*

- given a set of statements, descriptions, questions or graphic representations, to determine whether or not the set expresses, or is intended to express, a reason or reasons in support of or contesting some claim, opinion or point of view.

For example, given a paragraph, determine whether a standard reading of that paragraph in the context of how and where it is published, would suggest that it presents a claim as well as a reason or reasons in support of that claim) given a passage from a newspaper editorial, determine if the author of that passage intended it as an expression of reasons for or against a given claim or opinion; given a commercial announcement, identify any claims being advanced, along with the reasons presented in their support.

#### *Analyzing Arguments:*

- *given* the expression of a reason or reasons intended to support or contest some claim, opinion or point of view, to identify and differentiate: (a) the intended main conclusion, (b) the premises and reasons advanced in support of the main conclusion, (c) further premises and reasons advanced as backup or support for those premises and reasons intended as supporting the main conclusion, (d) additional unexpressed elements of that reasoning, such as intermediary conclusions, unstated assumptions or presuppositions, (e) the overall structure of the argument or intended chain of reasoning, and (f) any items contained in the body of expressions being examined which are not intended to be taken as part of the reasoning being expressed or its intended background.

For example: given a brief argument, paragraph-sized argument, or a position paper on a controversial social issue, to identify the author's chief claim, the reasons and premises the author advances on behalf of that claim, the background information used to support those reasons or premises, and crucial assumptions implicit in the author's reasoning; given several

reasons or chains of reasons in support of a particular claim, to develop a graphic representation which usefully characterizes the inferential flow of that reasoning.

### **8.8.3. Evaluation**

To assess the credibility of statements or other representations which are accounts or descriptions of a person's perception, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions or other forms of representation.

#### ***Assessing Claims:***

- to recognize the factors relevant to assessing the degree of credibility to ascribe to a source of information or opinion.
- to assess the contextual relevance of questions, information, principles, rules or procedural directions.
- to assess the acceptability, the level of confidence to place in the probability or truth of any given representation of an experience, situation, judgment, belief or opinion.

For example: to recognize the factors which make a person a credible witness regarding a given event or credible authority on a given topic; to determine if a given principle of conduct is applicable to deciding what to do in a given situation; to determine if a given claim is likely to be true or false based on what one knows or can reasonably find out.

#### ***Assessing Arguments:***

- to judge whether the assumed acceptability of the premises of a given argument justify one's accepting as true (deductively certain), or very probably true (inductively justified), the expressed conclusion of that argument.
- to anticipate or to raise questions or objections, and to assess whether these point to significant weakness in the argument being evaluated.
- to determine whether an argument relies on false or doubtful assumptions or presuppositions and then to determine how crucially these affect its strength.
- to judge between reasonable and fallacious inferences;
- to judge the probative strength of an argument's premises and assumptions with a view toward determining the acceptability of the argument.
- to determine and Judge the probative strength of an argument's intended or unintended consequences with a view toward judging the acceptability of the argument;
- to determine the extent to which possible additional information might strengthen or weaken an argument.

For example: given an argument to judge if its conclusions follow either with certainty or with a high level of confidence from its premises, to check for identifiable formal and informal fallacies; given an objection to an argument to evaluate the logical force of the objection; to evaluate the quality and applicability of analogical arguments; to judge the logical strength of arguments based on hypothetical situations of causal reasoning; to judge if a given argument is relevant of

applicable or has implications for the situation at hand; to determine how possible new data might lead logically to the further confirmation or disconfirmation of the given opinion.

#### **8.8.4. Inference**

To identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to deduce the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation.

##### ***Querying Evidence:***

- in particular, to recognize premises which require support and to formulate a strategy for seeking and gathering information which might supply that support.
- in general, to judge that information relevant to deciding the acceptability, plausibility or relative merits of a given alternative, question, issue, theory, hypothesis, or statement is required, and to determine plausible investigatory strategies for acquiring that information.

For example: when attempting to develop a persuasive argument in support of one's opinion, to judge what background information it would be useful to have and to develop a plan which will yield clear answer as to whether or not such information is available; after judging that certain missing information would be germane in determining if a given opinion is more or less reasonable than a competing opinion, to plan a search which will reveal if that information is available.

##### ***Conjecturing Alternatives:***

- to formulate multiple alternatives for resolving a problem, to postulate a series of suppositions regarding a question, to project alternative hypotheses regarding an event, to develop a variety of different plans to achieve some goal.
- to draw out presuppositions and project the range of possible consequences of decisions, positions, policies, theories, or beliefs.

For example: given a problem with technical, ethical or budgetary ramifications, to develop a set of options for addressing and resolving that problem; given a set of priorities with which one may or may not agree, to project the difficulties and the benefits which are likely to result if these priorities are adopted in decision making.

##### ***Drawing Conclusions:***

- to apply appropriate modes of inference in determining what position, opinion or point of view one should take on a given matter or issue.
- given a set of statements, descriptions, questions or other forms of representation, to deduce, with the proper level of logical strength, their inferential relationships and the consequences or the presuppositions which they support, warrant, imply or entail.
- to employ successfully various sub-species of reasoning, as for example to reason analogically, arithmetically, dialectically, scientifically, etc.

- to determine which of several possible conclusions is most strongly warranted or supported by the evidence at hand, or which should be rejected or regarded as less plausible by the information given.

For example: to carry out experiments and to apply appropriate statistical inference techniques in order to confirm or disconfirm an empirical hypothesis; given a controversial issue to examine informed opinions, consider various opposing views and the reasons advanced for them, gather relevant information, and formulate one's own considered opinion regarding that issue; to deduce a theorem from axioms using prescribed rules of inference.

### **8.8.5. Explanation**

To state the results of one's reasoning; to justify that reasoning in terms of the evidential, conceptual, methodological, criteriological and contextual considerations upon which one's results were based; and to present one's reasoning in the form of cogent arguments.

#### ***Stating Results:***

- to produce accurate statements, descriptions or representations of the results of one's reasoning activities so as to analyze, evaluate, infer from, or monitor those results.

For example: to state one's reasons for holding a given view; to write down for one's own future use one's current thinking about an important or complex matter to state one's research findings; to convey one's analysis and judgment regarding a work of art; to state one's considered opinion on a matter of practical urgency.

#### ***Justifying Procedures:***

- to present the evidential, conceptual, methodological, criteriological and contextual considerations which one used in forming one's interpretations, analyses, evaluation or inferences, so that one might accurately record, evaluate, describe or justify those processes to one's self or to others, or so as to remedy perceived deficiencies in the general way one executes those processes.

For example: to keep a log of the steps followed in working through a long or difficult problem or scientific procedure; to explain one's choice of a particular statistical test for purposes of data analysis; to state the standards one used in evaluating a piece of literature to explain how one understands a key concept when conceptual clarity is crucial for further progress on a given problem; to show that the prerequisites for the use of a given technical methodology have been satisfied; to report the strategy used in attempting to make a decision in a reasonable way; to design a graphic display which represents the quantitative or spatial information used as evidence.

#### ***Presenting Arguments:***

- to give reasons for accepting some claim.
- to meet objections to the method, conceptualizations, evidence, criteria or contextual appropriateness of inferential, analytical or evaluative judgments.

For example: to write a paper in which one argues for a given position or policy; to anticipate and to respond to reasonable criticisms one might expect to be raised against one's political

views; to identify and express evidence and counter-evidence intended as a dialectical contribution to one's own or another person's thinking on a matter of deep personal concern.

#### **8.8.6. Self-Regulation**

Self-consciously to monitor one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis and evaluation to one's own inferential judgments with a view toward questioning, confirming, validating, or correcting either one's reasoning or one's results.

##### ***Self-Examination:***

- to reflect on one's own reasoning and verify both the results produced and the correct application and execution of the cognitive skills involved.
- to make an objective and thoughtful meta-cognitive self-assessment of one's opinions and reasons for holding them.
- to judge the extent to which one's thinking is influenced by deficiencies in one's knowledge, or by stereotypes, prejudices, emotions or any other factors which constrain one's objectivity or rationality.
- to reflect on one's motivations, values, attitudes and interests with a view toward determining that one has endeavored to be unbiased, fair-minded, thorough, objective, respectful of the truth, reasonable, and rational in coming to one's analyses, interpretations, evaluations, inferences, or expressions.

For example: to examine one's views on a controversial issue with sensitivity to the possible influences of one's personal bias or self-interest; to review one's methodology or calculations with a view to detecting mistaken applications or inadvertent errors; to reread sources to assure that one has not overlooked important information; to identify and review the acceptability of the facts, opinions or assumptions one relied on in coining to a given point of view; to identify and review one's reasons and reasoning processes in coming to a given conclusion.

##### ***Self-Correction:***

- where self-examination reveals errors or deficiencies, to design reasonable procedures to remedy or correct, if possible, those mistakes and their causes.

For example: given a methodological mistake or factual deficiency in one's work, to revise that work so as to correct the problem and then to determine if the revisions warrant changes in any position, findings or opinions based thereon.

## 8.9 Supplement 3: Sampling of SATs

### NOTE

The SAT information in quotation marks has been extracted from the sources identified with each description. The recommendations for use are those provided in the original publications. We have grouped these SATs into four general categories as described in the FAC “Analysis Techniques” section.

### 8.9.1. Pattern Recognition

Pattern recognition is the arraying of information so as to enhance the recognition of patterns or relationships.

#### *Social Network Analysis*<sup>126</sup>

Description: “Social network analysis is an analytical technique which describes and maps relationships between individuals, groups, organizations, or resources...This technique attempts to answer the question “who knows whom?” Social network analysts uncover emerging and informal communication patterns in an organization by mapping these relationships. With this insight, analysts can then attempt to predict behavior and decision making within a social organization and evaluate specific courses of action that could influence the members of a social network in a desirable way.”

#### *Trend Analysis*<sup>127</sup>

Description: “Trend analysis, analysis of changes over time, is used primarily in marketing, business planning, and strategic planning, at national and corporate levels around the world. It includes a number of sub-methodologies: historical trend analysis, content analysis, cyclical pattern analysis, and the use of expert opinions called Delphi processes. It is not designed to be used as a stand-alone method, but it can be useful when combined with other approaches.”

#### *Five Forces Analysis*<sup>128</sup>

Description: This model claims “that five forces influence every market and industry.” The five forces are “Threat of New Entrants...Power of Suppliers...Power of Buyers...Availability of Substitutes...Jockeying for Position...While the Five Forces Analysis originally serves as a business model, its unique analysis of competition has a number of applications. The political environment surrounding a government official exemplifies a beneficial non-industry use. By adjusting the ultimate goal of the target from maximizing profit to suit the specific circumstances, the Five Forces method yields insightful analysis of virtually any environment.”

<sup>126</sup> Weaver, L.E. “Social Network Analysis” in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 103-116.

<sup>127</sup> Hill, Z. “Trend Analysis” in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 145-156.

<sup>128</sup> Viens, M. “Five Forces Analysis” in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 131-144.



### ***Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis***<sup>129</sup>

Description: “SWOT is a useful analytical technique for conducting an environmental scan to determine an organization's internal and external situation. SWOT analysis helps strategists focus on the key issues that they must address in order to enhance an organization's success. It is especially useful in analyzing an entity's current situation in a short period of time.”

### ***Geographic Analysis***<sup>130</sup>

Description: “Geographic Analysis is used to display data visually in a geographic format. Geographic Information Systems (GIS) are used to convert data into spatial and geographic maps in order for the analyst to discern patterns and correlations of such data.”

### ***Timeline Analysis***<sup>131</sup>

Description: “Timeline analysis is an excellent technique for revealing patterns and relationships among data...This technique supports trend analyses, situational assessments, and event predictions.”

### ***Cost Benefit Analysis (CBA)***<sup>132</sup>

Description: “CBA is a framework for assessing and comparing the costs and benefits of an activity, project, or policy over a particular period of time.” The technique “is frequently used in the public sector to analyze policies affecting public projects in the areas of transportation, health, criminal justice, defense, education, and the environment.”

### ***Sorting***<sup>133</sup>

Description: “A basic structuring technique for grouping information to develop insight to facilitate analysis. This technique is most useful for reviewing massive data stores that pertain to an intelligence challenge.”

### ***Event Trees***<sup>134</sup>

Description: “Graphical depiction of a potential temporal sequence of events, including potential junctures within the event sequence.”

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<sup>129</sup> Sharma, A. "SWOT Analysis" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 125-130.

<sup>130</sup> Fitzgerald, F. "Geographic Analysis and Crime Mapping" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 88-94.

<sup>131</sup> Williams-Taliaferro, E.L. "Timeline Analysis" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 63-70.

<sup>132</sup> Pate, E. "Cost-Benefit Analysis" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 21-28.

<sup>133</sup> Anonymous *A Tradecraft Primer: Basic Structured Analytic Techniques*. 2<sup>nd</sup> edn., Defense Intelligence Agency (DIA), Washington, D.C., 2009, p. 33.

<sup>134</sup> Anonymous *A Tradecraft Primer: Basic Structured Analytic Techniques*. 2<sup>nd</sup> edn., Defense Intelligence Agency, Washington, D. C., 2009, p. 51.

### 8.9.2. Changing or Validating Mindware

This SAT challenges the analyst to rethink the basis upon which he or she has made judgments.

#### *Alternative Thinking Techniques*<sup>135</sup>

Description: “Alternative thinking techniques...are ways of thinking that disrupt the typical linear, logical thinking pattern, and, by considering the problem or question from all viewpoints and developing options which would not otherwise be considered, arrives at an answer from a different angle...”

#### *Subjective Probability*<sup>136</sup>

Description: “A quantitative expression of an analyst's degree of belief in the truth of a statement relative to others from among a complete set of alternative possibilities... Subjective probabilities are used to quantitatively express an analyst's overall degree of belief in the truth of a statement or hypothesis where the total belief held by an analyst is allocated among the possibilities (non-overlapping hypotheses) in proportion to how likely each answer or event is correct.”

#### *Quality of Information Check*<sup>137</sup>

Description: “Evaluates completeness and soundness of available information sources... Weighing the validity of sources is a key feature of any critical thinking. If a major analytic assessment is planned, analysts should individually or collectively review the quality of their information and refresh their understanding of the strengths and weaknesses of past reporting on which an analytic line rests.”

#### *High-Impact/Low Probability Analysis*<sup>138</sup>

Description: “Highlights a seemingly unlikely event that would have major policy consequences if it happened...High-Impact/Low-Probability Analysis is a contrarian technique that sensitizes analysts to the potential impact of seemingly low probability events that would have major repercussions on US interests...If there is a strongly held view that an event is unlikely, then postulating precisely the opposite should not be difficult.”

#### *“What If?” Analysis*<sup>139</sup>

Description: “Assumes that an event has occurred with potential (negative or positive) impact and explains how it might come about...“What If?” analysis is another contrarian technique for challenging a strong mind-set that an event will not happen or that a confidently made forecast may not be entirely justified.”

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<sup>135</sup> Wozny, J.L. "Alternative Thinking Techniques" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 29-34.

<sup>136</sup> Anonymous *A Tradecraft Primer: Basic Structured Analytic Techniques*. 2<sup>nd</sup> edn., Defense Intelligence Agency, Washington, D.C., 2009, pp. 59-62.

<sup>137</sup> Anonymous *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis* 2009., pp. 10-11.

<sup>138</sup> Anonymous pp. 22-23

<sup>139</sup> Anonymous pp. 24-25

### ***Outside-In Thinking***<sup>140</sup>

Description: “Used to identify the full range of basic forces, factors, and trends that would indirectly shape an issue.” This technique can be “...most useful at the conceptualization of an analytic project, when the goal is to identify all the critical, external factors that could influence how a particular situation will develop.”

### **8.9.3. Diversive Mindware**

Diversive mindware adds a diversity of knowledge and beliefs to the analysis process.

### ***Event Mapping***<sup>141</sup>

Description - “A mind-mapping diagram representing the scenarios in hypotheses linked around a central word or short phrase representing the issue or problem to be analyzed.”

### ***Weighted Ranking***<sup>142</sup>

Description - “A technique used by an individual or group to gain confidence in the assessment of available alternatives by weighting criteria in importance from the decision maker’s point of view.”

### ***Key Assumptions Check***<sup>143</sup>

Description - “List and review the key working assumptions on which fundamental judgments rest...A Key Assumptions Check is most useful at the beginning of an analytic project. An individual analyst or a team can spend an hour or two articulating and reviewing the key assumptions...A key assumption is any hypothesis that analysts have accepted to be true and which forms the basis of the assessment.”

### ***Indicators or Signposts of Change***<sup>144</sup>

Description - “Periodically review a list of observable events or trends to track events, monitor targets, spot emerging trends, and warn of unanticipated change...An analyst or team can create an indicators or signposts list of observable events that one would expect to see if a postulated situation is developing.”

### ***Analysis of Competing Hypotheses (ACH)***<sup>145</sup>

Description - “Identification of alternative explanations (hypotheses) and evaluation of all evidence that will disconfirm rather than confirm hypotheses... While a single analyst can use ACH, it is most effective with a small team that can challenge each other’s evaluation of the evidence...ACH demands that analysts explicitly identify all the reasonable alternative hypotheses, then array the evidence against each hypothesis—rather than evaluating the plausibility of each hypothesis one at a time.”

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<sup>140</sup> Anonymous p. 30

<sup>141</sup> Anonymous p. 55.

<sup>142</sup> Anonymous p. 63.

<sup>143</sup> Anonymous. *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis* 2009. pp. 7-9.

<sup>144</sup> Anonymous p. 12.

<sup>145</sup> Anonymous pp. 14-16.

### ***Devil's Advocacy*<sup>146</sup>:**

Description - "Challenging a single, strongly held view or consensus by building the best possible case for an alternative explanation...Devil's Advocacy is most effective when used to challenge an analytic consensus or a key assumption regarding a critically important intelligence question...designate a courageous analyst to challenge the prevailing wisdom in order to reaffirm the group's confidence in those judgments."

### ***Team A/Team B*<sup>147</sup>**

Description - "Use of separate analytic teams that contrast two (or more) strongly held views or competing hypotheses...A Team A/Team B approach is different from Devil's Advocacy, where the purpose is to challenge a single dominant mind-set."

### ***Brainstorming*<sup>148</sup>**

Description - "An unconstrained group process designed to generate new ideas and concepts...Brainstorming is a widely used technique for stimulating new thinking and it can be applied to virtually all of the other structured analysis techniques as an aid to thinking."

### ***Red Team Analysis*<sup>149</sup>:**

Description - "Models the behavior of an individual or group by trying to replicate how an adversary would think about an issue...Red Team analysis tries to consciously place analysts in the same cultural, organizational, and personal setting ("putting them in their shoes") in which the target individual or group operates."

### ***Predictive Techniques***

Predictive techniques are used to foretell future events.

### ***Predictive Markets*<sup>150</sup>**

Description - "Predictive markets are essentially futures markets...Predictive markets invent an individual security and then create a market for this security. The security can be on virtually any subject, with the key being the type of subject and the size of the market."

### ***Decision Trees*<sup>151</sup>**

Description - "Decision trees are excellent tools for classification and prediction and allow for a more thorough analysis of a decision making dilemma. Through a series of nodes and branches, decision trees provide a highly effective structure that illustrates the options and potential outcomes of a particular decision. This taxonomy of repercussions provides a visual "map" that allows a decision maker to identify and choose the most strategic option. This structure also helps organize the overwhelming amounts of information that are relevant to a decision maker's specific topic."

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<sup>146</sup> Anonymous pp. 17-18.

<sup>147</sup> Anonymous pp. 19-20.

<sup>148</sup> Anonymous pp. 27-29.

<sup>149</sup> Anonymous pp. 31-33.

<sup>150</sup> Cressley, C.A. "Predictive Markets" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 95-102.

<sup>151</sup> Annibale, P. "Decision Trees" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 71-79.

### ***Scenario Planning***<sup>152</sup>

Description - “Scenario planning derives from the observation that, given the impossibility of knowing precisely how the future will play out, a good decision or strategy to follow is one that plays out well across several possible futures. The purpose of scenario planning is not to pinpoint future events but to highlight large-scale forces that push the future in different directions. It's about making these forces visible, so that if they do happen, the planner will at least recognize them.”

### ***Futures-Based Analytical Approach***<sup>153</sup>

Description - “A futures-based analytical approach starts with an assumed future condition and works backward to identify relevant current trends and an "unknown space" that links those trends with the assumed future. The "unknown space" is the missing link, or trigger, that propels the current state of affairs into the assumed future... A futures-based analytical approach is a tool to identify the key drivers of future catastrophic conditions in order to develop countermeasures that prevent the very act, or state of affairs, that is assumed to be inevitable.”

### ***Delphi Method***<sup>154</sup>

Description - “...involves the collection of views and opinions on a given problem from a number of "experts" and commentators, providing their input separately to the central point. At the completion of that round of gathering their views, the individual group members are provided with feedback about the group's overall judgments, and a second round of opinions is called for on the same problem. This process continues to narrow the estimates until the tasking unit is satisfied that some form of agreement has been reached—an agreement gained through sharing of individual expert opinions based on differing levels and types of experience, all brought to bear on a common problem.”

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<sup>152</sup> Hippler, R. "Scenario Planning" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 54-62.

<sup>153</sup> Kincaid, B. "Futures-based Analytical Approach" in *The Analyst's Cookbook. Volume I.*, eds. K.J. Wheaton, E.E. Mosco & D.E. Chido, Mercyhurst College Institute of Intelligence Studies Press, Erie, PA, 2006, pp. 44-53.

<sup>154</sup> McDowell, D. *Strategic Intelligence: A Handbook for Practitioners, Managers and Users*, Istana Enterprises Pty. Ltd, Cooma N.S.W, 1998, pp. 142.

## 9.0 ASSIGNMENT OF MEANING

*...why under certain circumstances human beings by themselves can come to know things that are hidden while these things remain hidden; that is, why they can know even when they have no direct access to these things and those who have would not talk. (Lai 2005)<sup>155</sup>*

### 9.1 Before We Start

In the “Introduction to the FAC” section, we defined the core objective of intelligence analysis as discerning what had been previously unknown: the hidden or classified plans, capabilities, and intentions of a foreign nation or adversary. While this has been said before, it cannot be said too many times or too often. The challenge of needing to know what others do not want you to discover is central to seeking information and developing and using the analytical approaches that we discuss in this section.

The objective of learning the unknown applies to any intelligence issue you address. It also establishes a measure for the success of your analytical results. That is, did you discover something that was previously unknown? If your analysis does not add anything to the information upon which you based your analysis, you are not providing the assessment needed by those you support.

But how is one to know what is unknown? While some might say that discovering the unknown is not possible, our life experiences tell us that it is. Detectives solve crimes and scientists discover many previously unknown features of the natural world. So, how is one to accomplish knowing the previously unknown? In the Introduction and Background section, we described two general analysis processes as defined by Heuer and Kent. In the Analysis Techniques section, we reviewed various SATs. However, processes and techniques alone are not sufficient to aid you in finding the unknown. This FAC section and the one that follows it, Assessment, provide a more complete description of an approach that helps you discover the unknown.

The first step in finding the unknown is to assign meaning to each of the individual pieces of relevant information that resulted from your information acquisition efforts. However, before we can start with our explanation of an approach to assigning meaning, we need to define terms. The terms we’re defining are used frequently in the intelligence analysis literature, but not necessarily with the same meaning or definition. In addition, the terms are used frequently in everyday conversations, with meanings different from our usage in the FAC.

The following definitions are those that we use in the FAC to discuss approaches for the assignment of meaning, as well as for subsequent FAC sections.<sup>156</sup>

Fact – repeatable measurements of various objects or phenomena. The most distinctive feature of a fact is that it represents a value which involves little or no human interpretation. The term *fact* is sometimes used synonymously with *truth* or *reality*, as distinguishable from conclusions or opinions.

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<sup>155</sup> Lai, T. *The Art of Detection*, 2005. Available: <http://plato.ucs.mun.ca/~tlai/Art/ArtTitle.htm>.

<sup>156</sup> The sources used to form these definitions include the Merrill-Webster Open Dictionary, Wikipedia, and Wiktionary. However, the definitions given do not conform exactly with the definitions from those sources since the definitions were tailored to relate to the cognition of analysis.

Data – output by a sensing device or organ that includes both useful and irrelevant or redundant content. Data must be processed into a form understandable by humans without adding additional information to the content. Data may or may not be based on repeatable measurements.<sup>157</sup>

Information – content resulting from physical or cognitive actions. For the purposes of the FAC, we use the word *information* for content that is communicated from one person to another.<sup>158</sup>

Knowledge/Beliefs – In the FAC, we consider knowledge and beliefs to be the interpretation of facts, data, and information. From a cognitive standpoint, we make no distinction between knowledge and beliefs.

Defining *knowledge* and *beliefs* is like being in a tar pit. People have been arguing over the meaning and difference between these two words since the time of the Greek philosophers, maybe even earlier, but written records of the arguments haven't survived. Differences in the definition of each word have been the grist for innumerable considerations ever since. We don't solve this problem in the FAC, but for our purposes, the two words are cognitively the same. Both represent a degree of conviction about the truth of a statement or the reality of some being or phenomenon, especially when based on examination of information. If a difference does exist between knowledge and beliefs it depends on the amount of information used to support one or the other and the interpretation of how conclusive that supportive information is. We know in some cases that people assimilate or learn what others consider to be knowledge, but their beliefs remain unchanged.<sup>159</sup> As we pointed out in the Analysts as Individuals section, some beliefs exist without any information to support them.

Clue – facts, data, or information that suggests an explanation for the information relevant to a topic about an unknown. Clues reveal something about a hidden aspect of structure, habits, or intent.

Evidence – evidence is relevant to a given hypothesis if the evidence either increases or decreases the likeliness of the hypothesis. Some usages of the word suggest that all facts, data, and information relevant to an intelligence issue are evidence. However, others, most notably Schum, define evidence as content relevant to the hypotheses being considered.<sup>160</sup> We use Schum's definition in the FAC.

Assumptions – statements or descriptions that are treated as if they are true without the necessity of proving them true. Assumptions are often used to establish boundary conditions for subsequent analysis. For example, the substantive areas identified in the

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<sup>157</sup> Both Kent and Heuer use the term *data* to describe the input to analysis. Their usage is not consistent with the FAC definition. Their intent is best expressed by using the word "information."

<sup>158</sup> The word *knowledge* is also frequently used to describe the content being communicated between persons. While the content being communicated may be knowledge to the individual doing the communicating, the content may not be knowledge to the persons receiving the content for reasons we'll explain later.

<sup>159</sup> For example, see Alexander, P.A. & Dochy, F. J. R. C. "Conceptions of Knowledge and Beliefs: A Comparison across Varying Cultural and Educational Communities," *American Educational Research Journal*, Vol. 32, No. 2, 1995, pp. 413-442.

<sup>160</sup> Hughes, F.J. & Schum, D.A. *The Art and Science of the Process of Intelligence Analysis*, Joint Military Intelligence College, Washington, D.C., 2003, p. 82.

analytic plan are assumptions about what is important to the intelligence issue. On occasion, an assessment may label assumptions those statements that actually represent the results of analysis. For example, statements regarding another country's intentions or capabilities, governmental processes, and relative strength of political forces may be labeled assumptions. However, these statements are clearly judgments that should be the result of intelligence analysis.<sup>161</sup> Such statements are not assumptions except when used to establish boundary conditions in a "what if" analysis.<sup>162</sup>

Hypothesis – a tentative conjecture explaining an observation, phenomenon, or scientific problem that can be tested by further observation, investigation, or experimentation. A hypothesis can be established whenever an explanation is desired for a collection of information.<sup>163</sup> While both assumptions and hypotheses have a common element of "assumed to be true", they differ in their intent. An assumption is a boundary condition for analysis. A hypothesis is an explanation of what results from the analysis. In the context of mindware, a hypothesis is a tentative belief that an analyst uses to evaluate information.

Opinion/Judgment – these two words are used to define one another. An opinion is a judgment and a judgment is an opinion. In both cases, they represent the transition from a hypothesis, or tentative explanation, to an accepted explanation. In typical intelligence usage, the only distinction between the words *opinion* and *judgment* is the degree of authority normally associated with the word. A judgment is considered more authoritative than an opinion. In either case, the development of an opinion or a judgment provided to an external audience is the final stage of analysis. Opinions and judgments represent the output of the entire cognitive process of analysis.

## 9.2 Now Can We Begin To Do Analysis?

No, not yet. Certain concepts are the foundation for the analysis approaches embedded in FAC. While we discussed most of these concepts in earlier sections of the FAC, we provide a consolidated review in this section to reinforce the concepts before you engage in analysis.

### 9.2.1. First Concept: Originator's Meaning

The first concept to review is that the *recipient* of information determines the meaning of the information. In view of the definitions above, we broaden this statement to say that the recipient determines the meaning of **all input** – facts, data, and information. The idea that input has a single meaning and is interpreted in one way, by all its recipients, has been proven incorrect. As we pointed out in the Introduction and Background section, the results of extensive scientific research support the concept that the recipient determines the meaning of all input. The intelligence literature also shows wide awareness of this concept even though the ramifications of the concept do not seem to be fully appreciated.

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<sup>161</sup> Heuer, R.J. & Pherson, R.H. *Structured Analytic Techniques for Intelligence Analysis*, CQ Press, Washington, D.C., 2011, p. 31.

<sup>162</sup> In the intelligence literature, the term *assumption* is frequently misused as synonymous with the term *belief*.

<sup>163</sup> This definition is similar to the one used by Schum. See: Schum, D.A. *Evidence and Inference for the Intelligence Analyst. Volume 1*, University Press of America, Lanham, MD, 1987.



We now know or believe that variances in meaning are the result of the variances in mindware between individuals.<sup>164</sup> In view of the definitions we discussed above, we define mindware as content (facts, data, and information), knowledge/beliefs, and goals. As we discussed in previous sections of the FAC, an individual's mindware does not remain constant. Changes can and do occur to mindware frequently. As a result, the meaning of information is always susceptible to change.

While the statement that information does not have a single meaning is true, we attach one very important qualifier to the statement. The statement is valid in terms of the recipients of the information; however, the originator of the information undoubtedly and most assuredly intends to communicate a single meaning. For intelligence analysis, there are many people that are part of your target of study that originate information (e.g., foreign decision makers, weapons designers, military planners, etc). Understanding the intended meaning of these originators is key to you understanding the target. This distinction between meaning to recipients and meaning to the originator is what separates intelligence analysis from most other forms of analysis. In most forms of analysis, the objective is to assign meaning and determine what the information means to *you*. In intelligence analysis, the objective is to assign meaning to determine what the *originator* meant.

As a consequence, one of the major objectives of intelligence analysis, that is, acquiring information and analyzing it, is to establish the mindware of the originator. Thus, your analysis has two components. The first component is to establish the context of an individual piece of information in order to build your alternate mindware. The second component, done only after you establish the context of information, is to begin the assignment of meaning *as it was intended by the originator*.

Your success at adopting these various perspectives in order to assign meaning to information depends on the state of your epistemological beliefs. If you'll recall from the Analysis Techniques section of the FAC, epistemological beliefs range from naïve to sophisticated and describe how an individual views knowledge itself. A naïve epistemological belief views knowledge as absolute, organized in isolated bits and pieces, handed down by authority, and that a person's ability to learn is fixed at birth. More sophisticated epistemological beliefs are characterized by views that include the perspective that knowledge is tentative, organized as interwoven concepts, derived through reason, and that a person's ability to learn can change throughout a lifetime. In order to accomplish the work we describe in this section of the FAC, we rely on more sophisticated epistemological beliefs.

The second concept we'll review relates to developing the alternate mindware of the originator.

### **9.2.2. Second Concept: Habits**

The second basic concept we'll review in this section is habits, or the predictability of people. Some authors think that discerning predictability is an impossible task:

But even the best-functioning intelligence service cannot be accounted upon reliably to predict the actions of foreign powers: divining political intentions is far and away the most difficult aspect of intelligence work. This holds especially true of dictatorial regimes, with which U.S. intelligence is particularly concerned, because their decisions

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<sup>164</sup> As a reminder, mindware consists of knowledge, beliefs and goals (as defined by Stanovich and discussed in the "Analysts as Individuals" and "Thinking about Thinking" sections).

are in the hands of unstable and impulsive individuals subject to few if any external controls. It is hard to predict the behavior of unpredictable personalities.<sup>165</sup>

However, the literature we reviewed to develop the FAC reflects a growing belief that irrationality is not the same as unpredictability. The best single example of this belief is manifested in the title of a recent book, *Predictably Irrational*.<sup>166</sup> Other publications we reviewed also characterized people as predictable since they are “creatures of habit”.

It can be difficult to make day-to-day predictions of an irrational leader's behavior, but in time a general pattern of behavior will gradually emerge thereby helping the observer to gauge some of the leader's reactions and readiness to take risks, if not to make more precise forecasts.<sup>167</sup>

Anticipating behavior patterns can be done at the individual and group level. People are predictable and creatures of habit if you are patient and skilled enough to locate the cues. There are a multitude of possible places to look for the puzzle pieces, usually in a data set.<sup>168</sup>

We are all creatures of habit, and nowhere is this more evident than in the way we make decisions. If something worked well for us once, we are likely to repeat that action. It is therefore important to examine the history of a manager's decisions. This is among the most important and easiest of the profiling dimensions to discern, because it is history and others know about it.<sup>169</sup>

One might question this heavy emphasis on knowing and understanding the past given that almost all intelligence issues relate to future events. Winston Churchill provided an answer to such a question:

The further back you look the further ahead you can see.<sup>170</sup>

Drucker also emphasized the role of the past in predicting the future:

In human affairs political, social, economic, and business it is pointless to try to predict the future, let alone attempt to look ahead 75 years. But it is possible and fruitful to identify major events that have already happened, irrevocably, and that therefore will have predictable effects in the next decade or two. It is possible, in other words, to identify and prepare for the future that has already happened.<sup>171</sup>

The FAC embraces the concept that you can predict a high percentage of someone's future acts **if** you work to understand that person's past physical, cognitive, and emotional habits. The need to understand the past does not imply that you can predict future behavior by simply doing a linear

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<sup>165</sup> Pipes, R. "What to do about the CIA," *Commentary*, Vol. 99, No. 3, 1995, p. 3.

<sup>166</sup> Ariely, D. *Predictably Irrational: The Hidden Forces that Shape our Decisions*, Harper, New York, 2008.

<sup>167</sup> Handel, M.I. "Intelligence and the Problem of Strategic Surprise," in *Paradoxes of Strategic Intelligence: Essays in Honor of Michael I. Handel*, eds. R.K. Betts & T.G. Mahnken, Frank Cass, London, UK, 2003, p. 28.

<sup>168</sup> Ronczkowski, M. *Terrorism and Organized Hate Crime: Intelligence Gathering, Analysis, and Investigations*, 2nd edn, CRC Press, Boca Raton, FL, 2006, p. 77.

<sup>169</sup> Fuld, L.M. *The New Competitor Intelligence: The Complete Resource for Finding, Analyzing, and using Information about Your Competitors*, J. Wiley, New York, NY, 1995, p. 406.

<sup>170</sup> Goodman, M.S. & Omand, D. "Teaching Intelligence Analysts in the UK: What Analysts Need to Understand: The King's Intelligence Studies Program," *Studies in Intelligence*, Vol. 52, No. 4, 2008, pp. 1-12.

<sup>171</sup> Drucker, P. "The Future that has Already Happened," *The Futurist*, Vol. 32, No. 8, 1998, p. 1.

extrapolation of past events into the future. The physical, cognitive, and emotional habits of an individual occur in a given context. Understanding that context is key to understanding the applicability of past events to the future. If a person's context has changed from what it was in the past, the change in context may affect the habits under study. This is why it is so important to understand both habits and the context in which they occur. Analytically, it is important to be aware of when a person's context has changed or to identify what is unknown about the new context. In subsequent parts of this section, we will describe how to use extensive information acquisition and the assignment of meaning to information in order to determine the *why* of a person's actions. The goal of this effort is to determine the habits of people, the context in which those habits take place, and the behavior that will likely result.

### 9.2.3. Third Concept: Structure

The FAC is based on the concept that almost all aspects of physical and cognitive acts take place within a structure. If you are considering an individual, some relationship exists between one act and the acts which preceded it. For example, consider offender profiling. Law enforcement may use a profile developed by the FBI to search for suspects for a particular crime. The offender profile used is based on the choices made by the criminal before, during, and after a crime and other information gathered by law enforcement. These choices form a structure that defines the offender's behavior; this structure can be perceived from one instance of the offender's behavior to another and provides a useful tool for identifying the person who committed the crime.

An offender profile is one kind of structure. Structures are also evident in decision making, languages, machinery, communication, crime, atoms, solar systems and molecules.

If you are attempting to determine the originator's meaning, you need to understand the originator's structure. Clues provide the means for discovering the originator of information's structure, just as clues provide the insight needed for developing an offender profile.

- Clues are the characteristics of structures. The more characteristics of a structure we know, the easier it is to distinguish it from other structures.<sup>172</sup>
- Clues are the characteristics of structures, disguised.<sup>173</sup>
- When something hidden is known, therefore, it is known because it has a structure (or is a part of some structure). If it has a structure (or is a part of some structure) clues can lead us to it. Knowledge of the hidden, therefore, depends on structure. No structure, no clues. No clues, no knowledge.<sup>174</sup>

### 9.2.4. Summary – Three Concepts

Originator's meaning, habits, and structure form the conceptual foundation for the FAC:

- The recipient of information determines the information's meaning. However, a distinctive characteristic of intelligence analysis is that an analyst must determine what the *originator* meant by the information. This requires that the analyst re-create the mindware of the originator during intelligence analysis.

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<sup>172</sup> Lai [unpaged].

<sup>173</sup> Lai [unpaged].

<sup>174</sup> Lai [unpaged].

- A characteristic, and perhaps unique, structure exists which determines the actions of people and organizations.
- People are creatures of habit, and habits are highly influenced by the structure in which they occur. Understanding both a person's structure and his or her physical, cognitive, and emotional habits can provide a reliable basis for prediction of future events.
- Information may exist that will reveal the structure, habits, and intent of the originators of the information.
- Clues are the means used to reveal the hidden aspects, structures, habits, and intentions of the subject of a study. The ability to identify these clues is dependent on an analyst's ability to:
  - Find all the information that can lead to a recognition of clues and;
  - Apply mindware to this information.

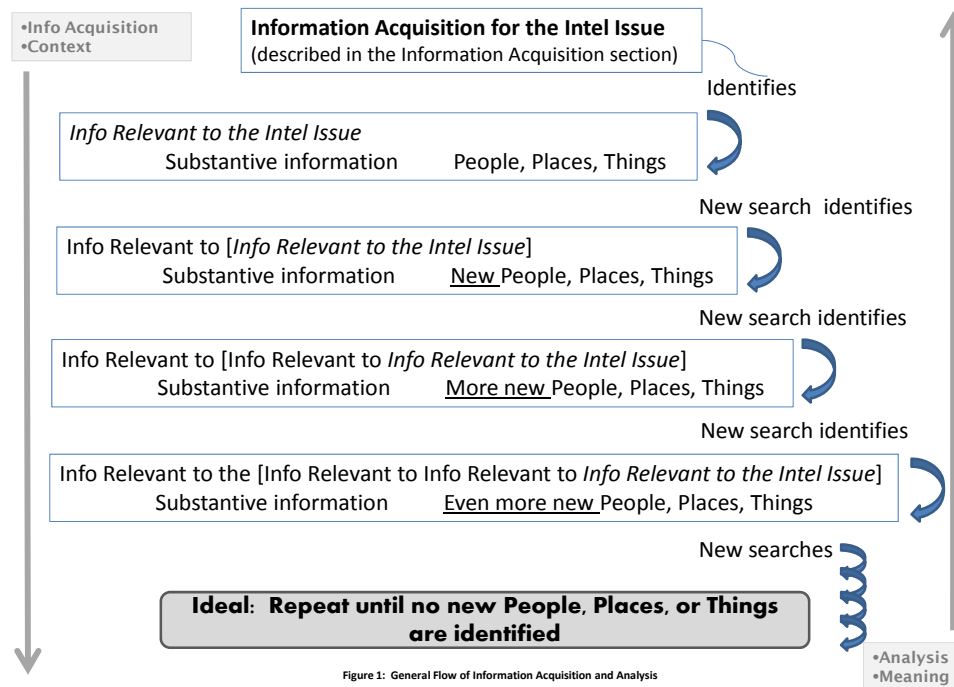
### 9.3 And the Consequences Are?

If you agree with the three concepts we discussed above, what may not yet be evident is how you incorporate these concepts into your analytical practices. To illustrate, let's return to our statement about the essence of intelligence analysis: assigning meaning to information. In the Introduction and Background section, we said that attributing meaning to information is based on the answers to two questions: *what* and *why*? The *what* question can usually be answered by the substance found in the relevant information you retrieve. However, the relevant information you retrieved rarely provides explicit information on the *why* question. The relevant information that you retrieved during information acquisition may have additional information about people, places and things. **Researching people, places, and things beyond the intelligence issue itself often contributes to understanding *why* something happened.**

*How can I use people, places, and things to answer the why question for the intelligence issue?*

If you consider habits, the second basic concept of the FAC, the activity reflected in the relevant information is likely to be consistent with the prior activities of the people involved with the intelligence issue. The places mentioned in the relevant information, either directly or by the involvement of people associated with the places, are likely to be consistent with the mission and past activities of the places. If things are involved, the purpose for their involvement is likely to be consistent with past usage and can generate additional clues.

Important information about people, places, and things that answers the *why* question is unlikely to be in any one document. However, it can be obtained from an analysis of all the information on the people, places, and things directly associated with the relevant information on associated people, places and things. The flow associated with the acquisition of all this information is shown in Figure 6.



**Figure 6: Information Acquisition Flow**

We described the first step of this approach in the “Information Acquisition” section. The result of the first step of information acquisition is a collection of relevant information and a listing of people, places and things associated with the relevant information. The listing of people, places, and things is the input for the search topics in the next step in Figure 6. **You review the results of searching in the next step to identify the information about person, places, and things and record a new list of people, places, and things to be searched further. These newly identified people, places and things will be the search topics for the next step.**

As you continue to search and identify new people, places and things, you acquire more and more information about the context of the information for which you plan to assign meaning. Ideally, you repeat this process until you can no longer identify any new people, places or things. At this point you have acquired all the contextual information that relates to information to which you hope to assign meaning. However, your searching effort may stop before you reach the ideal state – either because of limitations in time or because the content of the resultant searches seems too far removed from the intelligence issue driving the analysis.

After you acquire all the information described in Figure 6, your analysis can start to answer the *why* question for the people, places and things you identified. However, the concentration on answering *why* does not imply ignoring the substantive content contained in the information associated with people, places, and things. Even though the substantive content may not be relevant to the intelligence issue, you must consider the substantive content of the information relevant to the people, places, and things since it can be a valuable input to understand the *why*. In addition, when you search on people, places, and things you may retrieve more information relevant to the intelligence issue that you hadn’t anticipated when you developed the search topics.

We'll discuss the approach for answering the *why* question later in this section. However, there is something that is important to recognize that may not be immediately obvious. It is that a new purpose or goal is established for answering the *why* question for each of the people, places and things. It is also important to recognize that answering each *why* question represents a complete analysis effort as defined in FAC. To answer each *why* question, your purpose or goal is to answer that *why* question, including knowing how you are going to accomplish the analysis required, determining what information you will seek and from where, acquiring that information, assigning meaning, marshalling evidence, generating tentative hypotheses, and forming an explanation or explanations that are well supported by the evidence. As we'll discuss later, when an explanation is well supported by the evidence, it becomes a belief.<sup>175</sup> It is a general principle of the FAC that the cognition associated with any question related to addressing the intelligence issue is the same as that associated with directly addressing the intelligence issue.

As you undoubtedly have noticed, we are saying that before assigning meaning to the information relevant to the intelligence issue, a considerable amount of assigning meaning, marshalling evidence, and generating hypotheses has to be done on the information **related** to the relevant information. This section provides you with overall information on marshalling evidence and tentative hypotheses generation for the individual pieces of information you retrieve during this process.

In the next FAC section, we'll provide more information about the analysis directly associated with addressing your intelligence issue. This will include information about marshalling evidence and the beliefs that result from your tentative hypotheses about the individual pieces of information. We will also include information about generating additional tentative hypotheses for the aggregation of the beliefs resulting from your analysis of the information. Ultimately, your overall belief(s) will form the basis for the judgment(s) that will be communicated to an external audience to address the intelligence issue.

We can now add the following to the previous summary of the FAC basic conceptual foundation:

- The meaning of information is dependent on context. Since each individual provides the context, the meaning of the information is likely to be as varied as the differences among individuals.
- The challenge for the analyst is to create the originator's context for the information obtained.
- Analysis to address an intelligence issue consists of many layers of analysis, but cognitively the nature of the layers is the same. Overall, the assignment of meaning proceeds from the information least directly related to the intelligence issue to that most directly related (i.e., from the "bottom up" on Figure 6—more on this later).

#### **9.4 Now Are We Ready To Start With Analysis?**

Yes, we are finally ready. Analysis is a highly iterative and cognitive process with elements of creativity since you must generate new thoughts. Consequently, it can't be done using a checklist or a fixed set of steps. However, from the preceding material you can sense a more effective

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<sup>175</sup> As you will see in the descriptions that follow, at any point in the FAC approach for assigning meaning (i.e., acquiring context, answering the *what* question, and answering the *why* question), you may be operating with one or more hypotheses, explanations, or beliefs.

sequence for doing analysis, such as when certain information should be considered as well as the type of information to be considered. As we described in the “Analysis Techniques” section (e.g., regarding thinking dispositions and cognitive skills), it is important to use an orderly, focused approach. What follows is designed to help you do your analysis in an orderly, focused way, recognizing that the analysis is at times not sequential and is quite unstructured in nature. The approaches will guide you on the sequence for analysis and the information that you consider as you build your knowledge base, develop your understanding of the current status of the activities and intentions associated with your intelligence issue, and do your original thinking. This approach is designed to guide your cognition, not limit it, as you are engaged in the essential elements of analysis, i.e., assigning meaning, marshalling evidence, forming tentative hypotheses, and developing beliefs.

#### **9.4.1. Approach for Assigning Meaning and Analysis**

As was mentioned in the “Introduction to the FAC” section, the goal of assigning meaning to information is to determine the implications of hidden or special significance from the content of the information. When you’re assigning meaning using the approach in this FAC section, each piece of information is essentially treated equally. You will consider each piece of information and derive its meaning. As described in the “Introduction to the FAC” section, information is valuable if it changes your understanding. Determining the value of the information occurs as the information is related to the tentative hypotheses that you generate. As we discussed earlier, when a tentative hypothesis is well supported by information, it becomes a belief. Consequently, the value of information is based on the degree to which it changes your understanding and supports or refutes your hypotheses.

The meaning you derive from information answers two questions: *what* was done and *why* it was it done. Rarely will a single document contain the information needed to answer these questions, which is why we refer to it as hidden. The fact that some information is hidden is the basis for the common assertion that information doesn’t speak for itself. But, as Schum states, better questions allow you to “‘hear” what it [the information] has to say.”<sup>176</sup> Thus, as you transition to the assignment of meaning phase of analysis, your primary mode of thinking is to be inquisitive. The importance of being inquisitive has been best said as:

It is not possible to be a good thinker and a poor questioner.

Questions define tasks, express problems, and delineate issues. They drive thinking forward. Answers, on the other hand, often signal a full stop in thought. Only when an answer generates further questions does thought continue as inquiry. A mind with no questions is a mind that is not intellectually alive. No questions (asked) equals no understanding (achieved). Superficial questions equal superficial understanding, unclear questions equal unclear understanding. If your mind is not actively generating questions, you are not engaged in substantive learning.<sup>177</sup>

At this stage, you direct your questions towards identifying clues from the information you acquired in earlier steps. As we previously defined, clues are facts, data, or information that

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<sup>176</sup> Schum, D.A. *Evidence and Inference for the Intelligence Analyst. Volume 1*, University Press of America, Lanham, MD, 1987, p. 121.

<sup>177</sup> Elder, L. & Paul, R. *The Miniature Guide to the Art of Asking Essential Questions*, 4th edn, Foundation for Critical Thinking, Dillon Beach, CA, 2006, p. 3.

suggests an explanation for a phenomenon. This explanation becomes a tentative hypothesis, which can then be applied to the other information you collected. As you apply the hypothesis, you identify new clues that lead to new tentative hypotheses. When applying a hypothesis leads to a new clue, the likelihood increases that the hypothesis is the one most supported by the evidence and ultimately leads to the best explanation.

When little is known, how do we know that the hypotheses we advance in response to clues are correct? We can only know by seeing whether they lead to more and more new clues. If they do they are likely to be right even if we have not had a chance to test them. Tests are not the only way by which to find out how good a hypothesis is.<sup>178</sup>

At this stage, the information associated with clues becomes evidence as it linked to a given hypothesis and increases likelihood of that hypothesis. The concept of marshalling or organizing evidence is frequently a topic in the intelligence literature.

Different ways of organizing thought and evidence may lead us to: (i) ask different questions of and about our evidence, (ii) discover different evidence and hypotheses, and (iii) draw different conclusions.<sup>179</sup>

We might not even have noticed certain patterns of evidential conflict or noticed possible evidential synergism or redundancy unless we had organized our evidence in such a way as to reveal these characteristics.<sup>180</sup>

The emphasis on marshalling evidence in the intelligence literature stems largely from those who subscribe to the “hypotheses first” analysis process. Although FAC is not based on the “hypotheses first” process, some of the concepts presented in the “hypotheses first” process are useful for arraying and sorting evidence. The FAC approach for assigning meaning to individual pieces of information discussed in this section will incorporate some of the methods for marshalling evidence that Schum proposes.<sup>181</sup> We will discuss using these approaches more in the next FAC section, “Assessment.”

Hypotheses that are not based on clues are characterized as “wild guesses.”<sup>182</sup> An informed and experienced person may generate the hypotheses, but they are still guesses. If you’re an informed and experienced person you may be basing your guess on prior information acquisition and knowledge relevant to the issue at hand. This may result in a better guess than not having information and knowledge as the basis for your guess. However, it is still a guess until you focus any needed additional information acquisition, discovery of clues, and analysis on the particulars of the specific issue you are addressing. If the guess is not correct, you cannot obtain a valid answer to the intelligence question, as Heuer observes:

If a person does not generate the correct hypothesis for consideration, obviously, he or she will not get the correct answer.<sup>183</sup>

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<sup>178</sup> Lai [unpaged].

<sup>179</sup> Hughes, F.J. & Schum, D.A. *The Art and Science of the Process of Intelligence Analysis*, Joint Military Intelligence College, Washington, D.C., 2003, p. 37.

<sup>180</sup> Hughes p. 38.

<sup>181</sup> Hughes pp. 39-45.

<sup>182</sup> Lai [unpaged]

<sup>183</sup> Heuer, R.J. *Psychology of Intelligence Analysis*, Center for the Study of Intelligence, Central Intelligence Agency, Washington, D.C., 1999, p. 96.



This quote underscores the necessity of searching for clues that lead to hypotheses. A cycle of searching for clues and generating hypotheses continues until you can postulate a hypothesis that considers all the information and explains most of the information. This hypothesis then becomes your belief about the best explanation for the information. The hypothesis becomes the tentative assessment you'll use to address the intelligence issue.

In some cases, a single hypothesis may not explain most of the information. You may have multiple hypotheses at the completion of your analysis that are supported by the evidence to varying degrees, resulting in multiple explanations. Consequently, you could have multiple beliefs, not all believed with the same intensity, resulting from your tentative hypotheses. These beliefs will shape your assessment and how you eventually communicate that assessment to your customers. This will be covered in more detail in subsequent sections of the FAC.

Recognizing patterns within the information is a powerful technique for finding clues.

Patterns involve the composite of traits or features that are characteristic of an individual, a group, or a recognizably consistent series of related acts. Patterns are built upon relationships that drive human behavior, such as everyday activities, interactions, and transactions (in a very low-level sense), and strategy, will, and decision-making (on a higher plane of thought and action).<sup>184</sup>

Based on everything presented in the FAC, the following summarizes the FAC approach for assigning meaning to the individual pieces of information. We've indicated the relationship to previous FAC discussions in parentheses.

- Whenever you interpret any information, you must establish an unambiguous understanding of the reason, purpose, and goal for this interpretation. (Mindware)
- Based on that understanding, acquire all of the directly and indirectly related information.
- Read and understand the information you obtain. (Mindware)
- Question individual segments of information to determine the originator's content (i.e., facts, data, or information) and meaning. (Thinking dispositions)
- Identify clues from the aggregate of information pertinent to the purpose or goal. Base tentative hypotheses on the clues in individual pieces of information. (Procedural knowledge/cognitive skills)
- Incorporate the hypotheses best supported by the evidence into beliefs. (Mindware)
- Because you may have changed your mindware by incorporating new beliefs when you analyze new information, your approach to considering the next segment of information may be different.
- Repeat the above sequence all segments of information you retrieved.
- The net result is mindware that has been altered both in content and beliefs.

Now we can get on with the actions and cognition of assigning meaning: acquiring context, answering the *what* question, answering the *why* question, and combining these three.

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<sup>184</sup> Hall, W.M. & Citrenbaum, G.M. *Intelligence Analysis: How to Think in Complex Environments*, Praeger Security International, Santa Barbara, CA, 2010, p. 139.

**Acquiring Context:** Before you can assign meaning to information, you must acquire all of the contextual information that relates to the information you plan to evaluate. The activity is illustrated by the down arrow in Figure 6, labeled “Info Acquisition, Context.” To acquire all the information, do the following:

- During the acquisition of information, you were asked to make a listing of people, places, and things associated with the search topic but not identified in the information plan. Now this listing will be put to use.
- Devise a categorization scheme, which might correspond to the search topics given in the Information Acquisition Plan section.
- Assign each piece of relevant information to a category.
- Create a separate listing for people, for places, and for things. Organize the listings based on the category of the relevant information from which the people, places, or things were obtained.
- For each listing, accomplish (at least conceptually), an information plan and acquire the information as described in the Information Acquisition section. We recommend you use your search diary for this additional information acquisition.
- Select the relevant information from that acquired in step 5. Your relevance judgment largely consists of making a determination about which retrieved information relates to the specific people, places and things for which you are searching. NOTE: It is very common for different personalities and organizations to have the same name. This happens less for equipment, but it does happen. An equally complicating factor is that the same personality, organization, or equipment will have multiple names due to translations and transliteration differences or the assignment of names from multiple sources. When you find these variances, they become the basis for another round of information acquisition. The result of this step is a collection of information that is relevant to the *information relevant to the intelligence issue*.
- Review the new collection of information to determine if any people, places and things emerged that you didn’t use as search terms previously. If so, repeat steps 4, 5, 6, and 7 for the new search terms.
- Repeat this cycle until you can identify no new people, places or things or when you have retrieved an acceptable level of information. As we mentioned before, this is a judgment you may need to make based on time limitations or because the content resulting from the searches seems too far removed from the intelligence issue driving your analysis.

The information acquired by the above approach, coupled with the relevant information you acquired previously, constitutes the totality of the information based on what you now know. You use this totality of information to address the intelligence issue. This is not to say that as your analysis progresses the need for new information will not arise; it will. But for now you have what is available and pertinent, and you can now focus on assigning of meaning.

### ***Answering the “What” Question***

You should address the *what* question before addressing the *why* question since even a tentative answer to the *what* question helps answer the *why* question. Answering the *what* question consists of two activities:

- Reviewing the relevant information you retrieved during information acquisition for substantive content. This review occurs document by document.
- Establishing the timing and validity of the whole set of information.

To review the relevant information for substantive content, do the following:

1. Devise a categorization scheme, which might correspond to the search topics given in the “Information Plan” section.
2. Assign each piece of relevant information to a category.
3. Select a category for the *what* question you’re answering. You can begin with any category. However, by this time you are likely to have a sense that a particular category may be more relevant to the intelligence issue than others. If so, you can select that category as your starting point.
4. Sort the retrieved documents in each category based on the age of information associated with the document. If the document itself is dated, use that date for sorting. If the date of the content is included in the document, use that date for sorting. If the content isn’t dated, you’ll conduct a refined analysis later to determine the date of the content.
5. Use the oldest document as a starting point. Even though you read it previously to judge its relevance, read it again thoroughly. Determine the content of the document based on the meaning of the originator. You might ask yourself questions like these in order to determine the content of the document:
  - a. What is the substantive nature of the information presented in the document?
  - b. What is the basic message the document communicates?
  - c. What conclusions, inferences, ramifications, or observations does the document contain?
6. Select the next to the oldest document. Read it using the same approach you used to read the oldest document.
7. Place the content of the document you read in step 6 in the context of the oldest document. Some typical questions you might ask are:
  - a. How does the content of this document differ from earlier documents that dealt with the same substantive topic?
  - b. What is new or different about the findings?
  - c. How does the substantive content relate to the issue under analysis?
8. Repeat steps 5, 6, and 7 for every document in each category and for all categories. Remember to read the documents in chronological order.

During your review of the initial set of relevant documents, you may identify additional search topics. Use the approach outlined in the Information Acquisition section to obtain additional documents about these new search topics. Once you've retrieved new documents, repeat the steps above to assess the relevance of your search results.

Once you have identified no new search topics, found no new relevant information, and used all of the preceding steps to review the documents on hand, you have completed a comprehensive review of the documents you thought were relevant. The next phase of your review is to conduct an even more detailed examination of the relevant documents so that you can better determine the timing of events and validity of the information contained in the relevant documents. Use the following approach so that you can ascertain consistency for both the information in a single document and for the information from all the documents. To establish the timing and validity of the information you retrieved, do the following:

1. You organized your relevant documents previously by publication or information date. These dates become even more important when you are taking a closer look at the timing of an event or situation. It is possible to get even more accurate dating by looking at submission dates or investigating the typical publication delays for publications. If you can identify publication or submission dates, note them.
2. Given the date attributed to the information or the adjusted dates, is a logical progression of events or development of substance evident?
3. If you examine the whole of the relevant information and the dates don't make sense, what adjustment in the dates are required for a logical progression to exist?
4. Once you establish a sequence of events for the relevant information, and a change in the development of substance is evident, is the change in substantive content logical or possible?
5. What, if any, adjustment in substantive content is required to establish a logical sequence?

While you are determining the validity and sequence of the relevant information you retrieved, you may find clues that ultimately result in tentative hypotheses. These hypotheses may lead to other clues and the generation of new tentative hypotheses. As we discussed earlier, hypotheses that lead to more clues are increasingly likely to become the explanations most supported by the evidence. From a cognitive perspective, beliefs are explanations that are well-supported by evidence.

The final step in the transition of a tentative explanation, or hypothesis, to a belief may require you to acquire more information. You should scrutinize your tentative explanations and consider what activities would result from the explanations if they were to be true. If these activities were not part of the original plan for information acquisition, it is critical that you consider them new search topics. As with any new search topics, you need to repeat the entire process of acquisition, review for relevance, and assignment of meaning for these newly identified search topics.

As with previous FAC sections, we stress that it is important to capture your thinking while you are answering the *what* question. One approach for capturing your thinking might be to record the answers to all the questions you asked about the information in the steps above. You can use

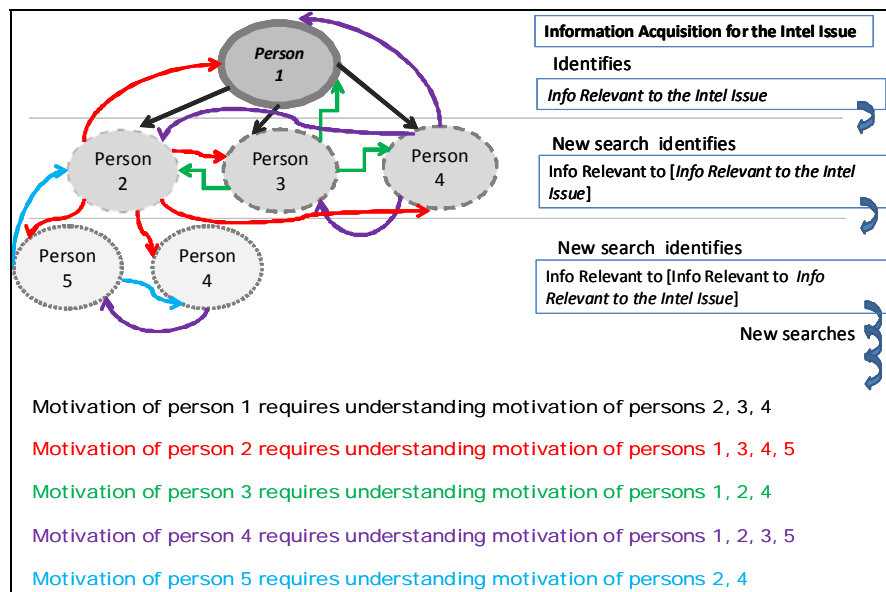
either hard copy or an electronic form to record your thinking. However, we suggest that you capture your thoughts in an electronic form because using that format will be helpful to you later.

**Answering the *Why* Question:** To answer the *why* question, you must achieve an understanding of the objectives and motivations associated with the actions of the people, the places, and the things associated with the intelligence issue. As we mentioned previously, if you know the habits of people acting as individuals and in association with places and things, you can establish a path to gaining understanding. To determine what these habits might be, you need to derive the following from the information you acquired on people, places, and things associated with the intelligence issue:

- People – history of activities, associations with other people and organizations, affiliations with places and things
- Places – history of activities, organizational structure, including subordination, mission, and people affiliated with the organization
- Things – place of development or acquisition, person or persons who developed or acquired the thing, history of its application or use, processes associated with its development, acquisition, or use

You should then subject this information on habits to the cycle of searching for clues and generating hypotheses that we described in the previous section. When you are trying to answer the *why* question, the clues you find and the hypotheses that result are related to the motivation and purpose of the people, places, and things associated with the intelligence issue.

Before discussing how to proceed with the *why* question, we have to explain an over simplification in Figure 6. The impression created by Figure 6 is that you start with the people, place, and things you last searched and then progress up the layers as you do your analysis. But, of course, analysis is not a linear process; it is highly iterative. While we are recommending a particular sequence for your analysis, recognize that you may have to repeat the cycle numerous times. You have to start somewhere and analyze the people, places, and things you identified during information acquisition and subsequent searches. You repeat the steps in this section until you've addressed all of the context and all of the *what* and *why* relationships you discover. To illustrate, just imagine the following relationships among people.



**Figure 7: Relationships**

In this example, Person 1 was identified in the information resulting from your initial search for Information Relevant to the Intelligence Issue. Then you conducted a search on Person 1 and found that Person 1 has associations with Persons 2, 3, and 4. So to establish a belief on the motivation and purpose of Person 1, you must have beliefs on the motivation and purpose of Persons 2, 3, and 4. You next focus on Person 2. You are already aware that Person 2 is associated with Person 1 (since Person 1 led you to Person 2). You also are aware that Person 2 has an association with Persons 3 and 4 since these two are associated with Person 1. When you then search specifically on Person 2, you find another piece of information that Person 2 is associated with Person 5 and Person 4 in a different relationship than the relationship with Person 1. So to arrive at a belief for the motivation of Person 2, you must have beliefs on the motivation and purpose of Persons 1, 3, 4, and 5, including the motivations and purpose involved with Person 4's two different associations. This means that **if two pieces of information are associated with the same individual, you must determine the *why* for each of the individual's different relationships.**

As the limited example given in Figure 7 illustrates, determining the *why* for an intelligence issue gets complicated because any individual's motivation and purpose are influenced by every other person with whom he or she is associated. In effect, interdependency exists among all the people in this example. Determining the motivation of any one person depends on knowing the motivation and purpose of all the others with whom they have an association. The situation becomes even more complex when you consider the interdependencies among people, place and things. The following approach provides a means for addressing this complexity:

1. For each of the people, places, and things directly associated with the information that is relevant to the intelligence issue, create a listing of the people, places and things. Then create a listing of the people, places and things directly related to the first listing. Then create a listing of the people places and things related to second listing. Continue until you have listings covering all the identified people, places, and things.
2. Select a person, place, or thing from one of the listings. Answer the *why* question for that person, place or thing. Since you will not have any beliefs at this stage for the associated

people, place or things, establish a tentative hypothesis for motivation and purpose based on the *why* answers.

3. Select a second person, place or thing and answer the *why* question. In this instance, the tentative hypothesis established from the prior step can complement the answers to the *why* question to establish a tentative hypothesis for motivation and purpose.
4. Repeat this process for all the people, places and things in your listings. Remember to use all prior tentative hypotheses for each instance when establishing each new tentative hypothesis.
5. When you have established tentative hypotheses for all of the people, places and things in the listing start over again making use of the tentative hypotheses. Repeat this cycle until the hypotheses for the motivation and purpose are consistent and complementary. When you generate a consistent and complementary set of hypotheses, these hypotheses are likely to be the most supported by the evidence and provide the best explanation of the *why*. As we mentioned before, from a cognitive perspective, that explanation then becomes a belief.
6. Capture your findings for each person, place or thing. You should include the information discussed earlier that you used to establish habits, as well as your beliefs on motivation and purpose. How you chose to capture this information is up to you.

Remember that the final step in the transition of a tentative explanation, or hypothesis, to a belief may require you to acquire more information. You should scrutinize your tentative explanations and consider what activities would result from the explanations if they were to be true. If these activities were not part of the original plan for information acquisition, it is critical that you consider them new search topics. As such, you would need to repeat the entire process of acquisition, review for relevance, and assignment of meaning for these newly identified search topics.

## **9.5 Finally**

You have developed a belief or series of beliefs for what the activity accomplished (*the what*) for each document that contains information relevant to the intelligence issue. In addition you have established a belief or series of beliefs for the motivation and purpose of the activity (*the why*). The combination of these beliefs is the meaning of the information for a particular document. Of course as you determine the meaning for each document, new judgments about meaning might cause you to change prior judgments. Throughout your work to assign meaning, it is important that you are vigilant about how new judgments may affect prior ones. Be prepared to make necessary adjustments in the meaning you assigned to information earlier in the process of determining the *what* and *why* of an activity.

As we have discussed repeatedly in the FAC, because of the role of writing plays in helping to stimulate your cognition, we recommend you capture the meaning of each relevant document. We suggest you use a method that works well for you but stress that capturing your impressions in writing will be very helpful.

## **9.6 Summary**

This section has provided you with an approach to discovering the unknown by assigning meaning to the relevant information that you obtained from your information acquisition efforts.

This approach is based on three key concepts: discovering the originator's meaning, understanding physical, cognitive, and emotional habits as a basis for prediction, and understanding the structures that affect the actions of people and organizations.

While almost all intelligence issues relate to future events, knowing and understanding both past and current states is necessary to prepare to predict the future. Clues about the *what* and the *why* are the means to discover hidden aspects about structure, habits, and intent. The *what* question can be answered by the substance of the relevant information, but the relevant information will rarely provide explicit information on the *why* question. However, the *why* question can be answered indirectly by analyzing attributes of the relevant information such as the people, places, and things associated with the relevant information.

Determining the meaning of the information to answer the *what* and the *why* for each piece of information depends on understanding the associated context. The challenge for the analyst is to create the context of the originator of the information. To understand context, you must acquire additional information based upon the new people, places, and things identified during the information acquisition. Ideally this search continues until no new people, places, or things are identified. Then you can focus on the assignment of meaning to answer the *what* and the *why* questions. However, analysis is highly iterative and involves the repetition of all the cycles of the FAC approach for assigning meaning.

By comprehensively reading the acquired information and asking questions about it, you generate additional clues. These clues ultimately result in tentative hypotheses, and the information supporting those hypotheses becomes evidence as it is linked to a given hypothesis. The tentative hypotheses that are most supported by the evidence become beliefs about the *what* and the *why*. The combination of these beliefs is the meaning of information for a given document.

In the next section, "Assessment," you will use the beliefs that you established for the meaning of each piece of information. You use these beliefs to form your understanding of the current status associated with your intelligence issue and then to develop a prediction that addresses the intelligence issue.



## 10.0 ASSESSMENT

*I take what I see work. I'm a strict believer in the scientific principle of believing nothing, only taking the best evidence available at the present time, interpreting it as best you can, and leaving your mind open to the fact that new evidence will appear tomorrow.*

*-Adam Osborne*

*Study the past, if you would divine the future.*

*-Confucius*

### 10.1 Introduction

At this stage you have finished the work of assigning meaning to all the information, piece by piece, that you judged as being relevant to the intelligence issue under analysis. The meaning you assigned was based on answering the *what* and the *why* for each piece of information given the associated context. It involved a rigorous process of finding clues that led to tentative hypotheses, testing the hypotheses using available information, using supported hypotheses to find more clues that then lead to even more new hypotheses for testing. You repeated this cycle of finding clues based on acquired information leading to supported hypotheses, leading to more clues, until no new clues or hypotheses resulted. The tentative hypotheses that were most supported by the evidence became beliefs about the *what* and the *why*. These beliefs reflect the substance and motivation associated with the content reflected in each individual piece of the relevant information. The beliefs that you developed during the assignment of meaning now become an important input to your assessment of the intelligence issue. This section discusses how to carry out the assessment of the intelligence issue.

### 10.2 First, Some Terminology

The intelligence literature is replete with the polysemy, or many definitions, of such terms as evidence, hypothesis, assumptions, beliefs, and conclusions. The net result is that agreements and disagreements which seem to exist regarding the cognition of analysis do not, in fact, exist. This is the consequence of using different definitions for crucial words that describe analysis. For use in the FAC, definitions for such words were provided in the Assignment of Meaning section. Since these words are heavily used in this section we recommend that you re-familiarize yourself with the FAC definitions.

We do introduce some new terms in this section. The beliefs that you developed while you were assigning meaning are called *beginning beliefs* in this section of the FAC. When you assigned meaning, information was the input to your cognition. During assessment, the inputs to your cognition are the beginning beliefs you developed while assigning meaning. **The objective of doing assessment is to integrate and correlate these beliefs so that you generate an overall belief.** This overall belief forms the basis for your judgments and conclusions; these judgments and conclusions are your assessment of the intelligence issue.

### 10.3 Marshalling Evidence

In the “Assignment of Meaning” section, we discussed the concept of marshalling evidence during the assignment of meaning. Schum best describes the importance of marshalling:

But the marshaling of thoughts and evidence in inference tasks has far greater importance than mere convenience. In addition, there are issues that arise in the study of such tasks that are anything but trivial. Thoughts and evidence organized or juxtaposed in one way can lead to significant insights that do not flash before us when these same thoughts and evidence are organized in other ways.<sup>185</sup>

Schum applies the common usage of “marshalling of evidence” to sorting and organizing evidence. The value of sorting and arranging, however, applies to more than examining evidence. For example, in the previous section we suggested using such marshalling to identify clues. In this section, we recommend the use of sorting and making arrays in order to organize your beliefs.

Here are some of the ways of sorting and creating arrays proposed in the literature:

- Marshalling by sources
- Creating event chronologies
- Marshalling by specific questions
- Marshalling by hypotheses
- Marshalling by arguments
- Marshalling for elimination
- Constructing scenarios or stories from evidence<sup>186</sup>

Schum suggests categorization as the primary criterion for marshalling. Some examples of categorization are:

- People
- Places
- Substance/what
- Motivation/why

Within each of these categories Schum suggests event chronologies as the most common basis for sorting and arraying. Changes in the categories as a function of time are a powerful means of achieving insight. Arraying of the aggregation of all the activities as function of time can be equally useful.

You can apply all of these arraying techniques to beginning beliefs. Once you have accomplished this, you need to examine the various arrays of beliefs for clues as we described in the prior FAC section. The objective of this examination is to find beliefs that describe a common intent of *what* and *why* for a cluster of endeavors. When you assign a common intent to a cluster of beliefs you are, in effect, developing a tentative hypothesis which provides an

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<sup>185</sup> Schum, D.A. "Marshaling Thoughts and Evidence during Fact Investigation," *South Texas Law Review*, Vol. 40, No. 2, 1999, p. 401.

<sup>186</sup> Hughes pp. 39-45.

explanation for these endeavors. You can then use this hypothesis to find more clues. If you can find enough clues, you can consider the hypotheses to be well supported by the underlying beginning beliefs. The hypothesis then becomes a new belief, an *intermediate belief* that incorporates several of the beginning beliefs. You'll continue this process until you incorporate all of the beginning beliefs into intermediate beliefs. Finally, you need to incorporate all of the intermediate beliefs into an *overall belief*. This overall belief, along with the beliefs on which it is based, provides an explanation for the historical activities of the target as well as the target's current status.

The possibility exists that you cannot find clues that lead to a hypothesis. In effect, you cannot put forth an explanation for the activities under analysis. When you encounter this situation, you have two courses of action. The first is to "guess" at a hypothesis using the techniques described in the prior FAC section. Various activities, some of which may not have driven your original information acquisition, will be associated with this "guessed" hypothesis. If so, you should use these activities as the search topics for a new effort to acquire information. The information you retrieve may provide additional insight or evidence that supports your "guessed" hypothesis.

You should then review the information you acquire using these new search topics and identify any relevant information. During this review, the basis for your relevance judgment is the relationship between the information content and the "guessed" hypothesis. Subject all of the relevant information to the same approaches you used when you reviewed the information relevant to the intelligence issue. If the results of these approaches support the "guessed" hypothesis, you can adopt the hypothesis as an intermediate belief and continue with generating more intermediate beliefs and merging intermediate beliefs into a final belief.

If the approach described above does not result in a usable intermediate belief, the strong implication is that an explanation for what and why that encompasses all the endeavors related to the intelligence issue does not exist. Nevertheless, you can address the intelligence issue based on this lack of an overall belief. This is the second course of action when you cannot find clues that lead to a hypothesis.

If the relevant information covers an extended period of time, for example more than 5 years, you would expect to see a change in purpose and motivation during that period. Thus, when you examine the beginning beliefs as a function of time, you need to be sensitive to such changes. When you note changes in purpose and motivation, you need to separately apply the process of generating beliefs to the time period before the change occurred. You then generate an overall belief, a historical belief, for the time period prior to the shift as well as a current overall belief.

Historical overall beliefs provide a perspective on events that occur subsequent to the time period covered by the belief and help in the interpretation of these events. However, the value of the historical overall beliefs is the opportunity to calibrate your process of generating beliefs with reality. You can compare the known actions of a country or group with purposes and intents derived from the analysis process. Obviously, the higher the degree of correlation between these two factors, the more confidence you have in the beliefs related to the current purpose and intent.

As a final step, scrutinize the overall belief to identify any activities that result from the belief that were not part of the original plan for information acquisition. If you identify any activities, they constitute new search topics. As such, you must repeat the entire process of acquisition, assignment of meaning and marshalling of beliefs for these newly identified topics.

Once you complete the last step and make any adjustments to the overall belief, you have an explanation for the current status of a country or group activities in areas related to the intelligence issue. This overall belief and all of its supporting beliefs and evidence are the basis you'll use for developing an assessment for the intelligence issue.

As with other FAC sections, we strongly suggest that you use writing to capture the process and results of forming beliefs. Your written description should include a description of the evolution from beginning beliefs to overall beliefs and the basis for each of the beliefs. If you generated historical beliefs, you should also include them as well as all the correlations identified between these beliefs and subsequent events.

#### **10.4 The Assessment for the Intelligence Issue**

When you acquire your final belief regarding all of the activities related to the intelligence issue, you are at the end point of making sense of the available information. The last step is the application of your beliefs and the underlying information to develop an assessment for the intelligence issue. However, before doing so, you should acknowledge that, as a result of following the FAC, you are a changed person. You have learned new information and acquired new beliefs, all of which have substantially altered your mindware. This change in mindware does affect the interpretation and value you assign to information. Also, the approaches presented in FAC have a basic sequential characteristic. On numerous occasions the FAC recommends that you identify new topics for investigation and subject these new topics to the complete FAC approach. However, you have not been asked to review what was accomplished in prior sections before addressing the intelligence issue. The time has come for you to do this.<sup>187</sup>

The change in your mindware can significantly affect the work you did in three sections of the FAC: developing the intelligence issue statement, creating the analysis plan, and performing information acquisition. As with prior FAC sections, it is important to reexamine prior efforts as your mindware changes throughout the analysis process. The following discussion describes how these changes in mindware might require additional work in each of these areas.

##### **10.4.1 Intelligence Issue Statement**

The starting point of all intelligence analysis is the expression of a need for such analysis, in effect a statement of an intelligence issue. Since the intelligence issue has a domino effect on all that follows, you need an unambiguous understanding of the intelligence issue. This includes why the need exists and how the requestor plans to use the intelligence assessment once you provide it. Your interaction with the source of the issue is very beneficial; however your efforts to gain a full understanding may be impeded by an imperfect knowledge of the nature or characteristics of the issue. This may also be the case if you initiate the intelligence issue. Clearly, at the end of the analysis effort, you have a greater level of knowledge and understanding than you did in the initial stages of your analysis. Did your understanding of the intelligence issue change? If so, you need to consider whether this change in understanding results in a need for information beyond that which you have already acquired in the completed

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<sup>187</sup>This description can convey the image of mindware changing in discrete steps at various intervals during the FAC procedures. Obviously, this is an incorrect image since mindware changes continuously and your analysis is potentially affected by every change. From a practical standpoint one cannot redo all the cognition done prior to a change in mindware. What we do propose in the FAC is to hold in abeyance the reexamination of those portions of FAC that are very sensitive to mindware until you achieve what you deem is the final mindware regarding the intelligence issue.

effort. If you identify the need to acquire more information, you must iterate through the FAC for this newly identified information before you develop your assessment for the intelligence issue.

#### **10.4.2. Analysis Plan**

Most intelligence issues relate to actions on the part of others. To accomplish these actions the entities involved must have the capability to accomplish the action, the motivation to take action, and finally, to actually make a decision to take the action. It follows then that the analysis must determine the level of capability possessed by an entity as well as efforts to change its capabilities, the motivations of an entity, and how decisions are made, including inputs to the decision making an entity. The analysis plan identifies the effort and approach required to make these determinations. Based on the organizational allocation of roles and responsibilities, the analysis plan also identifies who will make such determinations. To a large degree the analysis plan is based on the pertinent knowledge possessed at the initiation of the analysis effort. As we mentioned before, this knowledge is likely to be less comprehensive than what you will know at the end of the analysis effort. Your increased knowledge may reveal omissions in your original plan and necessitate the acquisition of additional information. As we described above with issue statement, the acquisition of additional information means another iteration through the FAC before you can develop an assessment for the intelligence issue.

#### **10.4.3. Information Acquisition**

The change in your mindware affects an important facet of information acquisition: the selection of information that you deemed to be relevant to the intelligence issue. You may have rejected some information as being non-relevant that you would now judge as being relevant because of the change in your mindware. As a practical matter you cannot reexamine all of the rejected information because of volume and the likelihood you didn't retain the rejected information. As an alternative you can do an introspective examination to identify the changes in mindware that could affect your relevance judgments. If you identify such changes you can use them to search for information. You can review any information you acquire to identify relevant information. As in the issue statement and the analysis plan, you then subject all the newly identified relevant information to the FAC.

Once you have re-examined your mindware and completed all of the related actions we describe above, the possibility exists that your mindware has changed yet again. Does this mean that you should repeat what is described above? The answer is: it just depends. Only you can judge the magnitude of change that has occurred and what, if any, new insights have resulted. The possibility does exist that you will need to repeat the above actions again.

Once you achieve a final overall belief, you are ready to develop your assessment for the intelligence issue.

### **10.5 Prediction**

Despite how well you know the current status of the activities and the intent of the target entities, or how confident you are of this knowledge, the probability is high that you do not yet have an assessment for the intelligence issue. Almost all intelligence issues relate to a future state of activities, developments, and intent. Thus, you must now use your knowledge of the current status to predict what will result from these endeavors.

Generally, predictions about the behavior of a target fall into one of three categories:

- A decision has been made regarding a future objective. Efforts are underway towards achieving this objective.
- A decision about a future object has not yet been made but efforts to build the capability to achieve the objective once a decision has been made are underway.
- No decision has been made and no efforts are underway toward building the necessary capabilities for some, as yet, undefined objective.

Predictions that fall into the first category are the easiest to make. From your understanding of the current status of the target you likely know the length of time the efforts have been underway as well as what the target has accomplished to date. Using the historical record of similar endeavors as an analog, plus any special consideration associated with the current endeavor, you can make a prediction for the time required for completion of the effort.

When the target has not made a decision, but supporting efforts are underway, the primary basis for the prediction is the use of analogs. You can use historical information, modified based on the relative complexity, the status of supportive activities, and any special considerations associated with the current endeavor that are not associated with the analog to make your prediction. You can qualify your prediction of the date when the objective will be achieved in terms of time needed after the target makes the decision to move forward.

Predictions in the last category are the most difficult to make. In effect, you have found no information that acts as an indicator of efforts that lead to the objective. This condition will often be reflected in the buildup of intermediate and overall beliefs. The inability to arrive at an overall belief is highly indicative of a lack of planned efforts directed towards a specific objective. While in such cases it may be prudent not to make a prediction, the nature of intelligence analysis typically requires one to be made. Consequently, making a prediction may be unavoidable. In such circumstances the only recourse is to use the experience of other countries or groups that have accomplished the objective. You have to modify the experiences of other countries or groups based on conditions as they exist in the target entity.

A very valuable technique for aiding prediction is the identification of the milestones of actions or accomplishment leading up to the accomplishment of the objectives. The required milestones aid in the establishment of timelines, serve as indicators of future progress, and reveal benchmarks for comparing anticipated accomplishments versus actual accomplishment. Knowledge of benchmarks permits you to adjust your predictions at the earliest possible date if you determine that the benchmarks have changed.

## 10.6 Uncertainty

Universal agreement exists that the output from intelligence analysis has a degree of uncertainty. The output of intelligence analysis is based on incomplete information and the target of the intelligence analysis activity is uncooperative, to say the least. As a result, a frequent topic in the intelligence literature is how to deal with uncertainties. Tools and techniques for quantification of uncertainty are an especially popular topic.

### QUANTIFYING UNCERTAINTY

Under the premise that no conclusion can be better than the evidence upon which it is based, Schum has written extensively and comprehensively on the role of evidence in supporting hypotheses and conclusions (Schum 1987). He deals with such topics as assessing the value of evidence, source credibility, conflicting evidence, redundant evidence, and missing evidence. In addition he provides information on three statistical techniques for dealing with uncertainties; Bayesian, Baconian and Shafer-Dempster methods of evidence aggregations. At the same time Schum recognizes the practical difficulties of using this information in judging the degree of uncertainty:

Conventional courses in logic, probability, and statistics do not prepare a person for the task of drawing conclusions based on masses of evidence whose items suggest many, often complex and interrelated, lines of arguments on hypotheses of interest. (Hughes & Schum 2003: 2)

Trying to keep track of all uncertainties associated with sources of evidence, much less to assess and combine them all, would be inferentially paralyzing. Only you can decide what you will believe; all our present studies can do is to alert you to questions you can ask in the process of deciding what you will believe. (Schum 1987: 125)

While we do not question the importance of evidence, to consider evidence as the sole and dominant factor in determining uncertainty is ignoring the other inputs to the inference/analysis process: hypotheses and beliefs. Since which information is considered evidence is dependent on the hypothesis under consideration, the selection of an erroneous hypothesis can result in a very uncertain outcome. Also, the beliefs used in the inference process are based on other inference processes. You cannot judge the uncertainty of the result of a particular inference process without a consideration of the uncertainty of preceding and related inference processes. Thus, any expression of uncertainty regarding the results of an inference process is based on series of subjective judgments.

#### *References:*

Schum, D.A. *Evidence and Inference for the Intelligence Analyst. Volume I*, University Press of America, Lanham, MD, 1987.  
Hughes, F.J. & Schum, D.A. *The Art and Science of the Process of Intelligence Analysis*, Joint Military Intelligence College, Washington, D. C., 2003.

While the desire to quantify the degree of uncertainty is understandable, what you are really being asked to do is to express the strength of your belief in the likelihood of an outcome. You are being asked to judge findings, conclusions and predictions that are based on a multitude of beliefs. This can be best illustrated by a brief review of the approaches used in getting from information to meaning.

The basic FAC approach for determining the meaning of information is:

- Acquire all the information relevant to your purpose (the intelligence issue).
- Array the information so that you can identify clues that suggest an explanation for the information acquired.
- Your purpose now changes to testing the hypotheses. By applying your mindware, identify information that supports the validity of a tentative explanation (hypothesis). Such information becomes evidence for the hypothesis.
- If the tentative hypothesis seems to be true, consider what other information could be evidence. Seek this information and, if you find it, subject it to the FAC approaches.
- Based on the amount and nature of the evidence you have at hand, determine the likelihood that the hypothesis is true and valid.
- If the likelihood is high, convert the hypothesis to a belief and incorporate it into your mindware.
- Apply your revised mindware to subsequent approaches for determining meaning.

Apply this approach to all information relevant to the intelligence issue and to all information that is relevant to the relevant information.

We have stated that an explanation for all the relevant information to the intelligence issue depends on assigning meaning for each piece of information. The meaning assigned is based on a belief as to the “what” and “why” for each piece of information. One cannot predict how many pieces of relevant information will be found for an intelligence issue, but for illustration purposes let’s say 100 pieces of information are relevant. Thus the assignment of meaning will be based on 100 conclusions of the “what”, 100 conclusions of the “why”, and 100 conclusions on the meaning of the combination of the “what” and the “why.” However, as we stated in a prior section, determining the “why” depends on determining the “what” and “why” of information that is relevant to the relevant information. Again, the amount of relevant to relevant information is unpredictable but will be much greater than the amount of relevant information. In our example, one could easily identify 500 pieces of relevant to relevant information. The end result is that the assignment of meaning to information germane to the intelligence issue could be based on conclusions derived from hundreds, if not thousands, of interdependent beliefs.

The statistical approach for calculating uncertainty is to multiply the uncertainty of one factor times the uncertainty of all the other associated factors. The application of this approach to all the beliefs described above produces a meaningless and unusable result. Even if you were very certain about each and every belief you used in assigning meaning, the multiplication of that value thousands of times results in an extremely small value of certainty. That value is highly unlikely to agree with the degree of certainty that you would subjectively assign.



So what can you do? How can you reconcile quantifying the degree of uncertainty with your subjective sense of uncertainty? Perhaps the explanation lies in the following:

Phillips argues that, though probabilities are numbers, uncertainty is a feeling: in short, there are no "true" probabilities residing in our heads, only diffuse feelings of uncertainty.<sup>188</sup>

The situation is exacerbated by the contrast between the FAC analysis approaches and those typically described in the intelligence literature. The latter focuses on evidence that relates to the final conclusion; the FAC arrives at conclusions from a scaffolding of beliefs where only the lower level beliefs are likely to be directly dependent on evidence.

Having conclusions based on hundreds or more interdependent beliefs is a positive, not negative, factor in judging uncertainty. As we mentioned in a prior section of the FAC, one of the means of revealing secrets is to understand the structure of whatever is being kept secret. The structure provides order, consistency, and relationships. An evaluation of the coherence and consistency of the beliefs that result from your analysis in establishing and defining a structure is a very effective means of deriving insight into the certainty of your conclusions.

Comparing your analysis results with reality, which we mentioned earlier, is another method for understanding your degree of certainty. If you are able to make accurate predictions of past events based on analysis of information that preceded the event, your ability to understand what is happening and what will happen is very much enhanced.

As we discussed earlier addressing the intelligence issue involves formulating an explanation for the current status of a country or group activities in areas related to the intelligence issue and making predictions based on this explanation. You have to express your degree of uncertainty about both.

The common practice in the intelligence community is to express uncertainty in terms of verbal expressions. For more than 40 years, efforts have been underway to quantify uncertainty because it is known that different people assign different degrees of uncertainty to the same verbal expression.<sup>189</sup> Despite all these efforts the practice of verbal expressions for uncertainty is still dominant, perhaps for the reasons given by Phillips. Regardless of the technique used and means of expression, a statement of uncertainty is still a subjective judgment by the analyst who performed the analysis. Only you know how much information was supportive of the analysis, how well supported hypotheses were based on evidence, the internal consistency of the hypotheses you generated and how strongly you believe the beliefs that resulted from this analysis. Ultimately when you prepare the product for the customer, you will use whatever system has been adopted by your organization to express your views about how uncertain you are of the resulting judgments.

## **10.7 Finally**

The last step in assessment is to compare the scope and content of your assessment to the intelligence issue statement you created earlier. Do you have the judgments necessary to address

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<sup>188</sup> Schum p. 380.

<sup>189</sup> Rieber, S. "Communicating Uncertainty in Intelligence Analysis", *Annual Meeting of the International Studies Association*, San Diego, CA, March 22-26, 2006, [unpaged].

the intelligence issue? If not, why not? What is required to produce any additional judgments that might be necessary?

The expectation is that any deficiencies identified at this stage require only some re-examination of the assignment of meaning or subsequent phases. However, as mentioned earlier, the possibility exists that doing the analysis has resulted in much greater and different appreciation of the intelligence issue. If so, you might have to start with a new approach to information acquisition. During this new information acquisition, you will add any new relevant information that results to the prior relevant information. You must then repeat the FAC approaches for assigning meaning, developing an overall belief, and making your prediction to complete your efforts.

We suggest that you capture in writing the process and results of forming predictions. The written representation should include a description of the analogs used in aiding the predictions, any special conditions associated with the target that caused you to make adjustments and all milestones used.

## **11.0 ANALYSIS REPRESENTATION**

### **11.1 Introduction**

You have now completed all of the essential elements of analysis that we recommend in the FAC. For each element you were asked to capture your thinking in writing because of the important role writing plays in stimulating your cognition. Now is the time to integrate all of these written representations together to form a comprehensive and coherent *analysis representation*. This analysis representation represents the totality of your analytical efforts. Before you start, however, we recommend that you reread the “Writing as Thinking” subsection of the “Analysts as Individuals” section of the FAC.

As we describe in “Writing as Thinking,” preparation of the analysis representation is beneficial in three ways:

- Writing can be used not only to communicate with others, but also to help you generate ideas, to engage in self-reflection as you develop your thoughts about a topic, and to connect and develop those ideas into coherent themes and assessments.
- Once you have completed it, the analysis representation allows you to change your role from writer to critic. You can examine what you have written thoroughly and ask yourself “why did I say what I said?” You can think about the thinking that the written word represents and take a closer look at your evidence, assumptions, beliefs, judgments, and conclusions.
- Just as the analysis representation provides a source for self-criticism, it also serves as the basis for you to provide answers to others who would be critical of your output. Any discussion can then focus on not just the judgments or conclusions but on the cognition documented in the analysis representation.

You write the analysis representation for your own use. You are both the author and the customer. You have no constraints with regards to size, format, or style. While clear and effective writing is always preferred, the emphasis of this writing is to include the totality of what you did and write it out in a coherent manner.

### **11.2 How to Begin**

During your analysis you have written material associated with each of the following sections of the FAC:

- Intelligence Issue Statement
- Analysis Plan
- Information Plan
- Information Acquisition
- Assignment of Meaning
- Assessment

As we discussed in the “Assessment” section, you are, cognitively, a different person than the one that embarked on this analytical effort. You now know more about the issue under analysis, but the process of knowing more has not been a linear one. Iterations have been a common occurrence as you progressed through the FAC approaches. In many cases, what you discovered

required a return to an earlier stage. Perhaps you did not capture all of these iterations in your written representations. As a result, you should examine those written representations and modify them if necessary to ensure that they reflect all that you considered or accomplished.

The following sections contain suggestions for the content from previous FAC sections that you should consider including in the analysis representation.

### **11.3 Content of the Analysis Representation**

#### **11.3.1. Intelligence Issue Statement**

Include the originally agreed upon intelligence issue statement. Update both the target view guide and the customer view guide. Describe any changes that might be required either in terms of neglected considerations or unduly placed emphasis on other considerations. Explain why these changes are necessary. Is this issue more or less pressing now than when the analysis started? If so, why? If changes have occurred, rewrite the intelligence issue statement and include the revised issue statement, as well as the original one. In your written description, be explicit as to whether the subsequent analysis is based on the original issue statement or the revised one.

#### **11.3.2. Analysis Plan**

Include the original analysis plan. If the issue statement has changed, rewrite the analysis plan and include it. Compare the rewritten analysis plan with what was accomplished. If the substantive areas changed, indicate whether these changes resulted from subsequent information acquisition, analysis, or issue changes. For those areas where others were to provide an input, did you receive those inputs? If not, what was done? Did you ignore those areas when doing the assessment, did you seek input elsewhere, or did you provide the needed judgments even though they were outside your area of analytic responsibility? If you did the analysis yourself, what was the basis for your judgments? Was the schedule met? If not, when were things accomplished? Why did the schedule change? Were you provided the needed resources? If not, what adjustments were made in the execution of the analysis effort? Rewrite the analysis plan to reflect what you actually did and include it in the analysis representation.

#### **11.3.3. Information Plan**

Include the original information plan. If the broad topics areas were changed in the analysis plan, rewrite the information plan and include it. Were all the topic areas searched? If not, why not? Were all the sources used, if not why not? If others were to acquire some of the needed information for you, did they acquire it? If not, what was done (if anything) to compensate for this lack of information? Were the schedules met? If not, what was the effect on the acquisition of information? Rewrite the information plan to reflect what you did and include it.

#### **11.3.4. Information Acquisition**

From your search diary provide, if you can, the following information:

- For each IS&R system, search topic, and search logic, provide data on the number of documents retrieved and the number you determined were relevant.
- The IS&R system source(s) for each relevant document.
- The language of each relevant document.

- For each search topic, include the search logic you were using at the time searching ceased and the reason why you stopped searching.
- A bibliographic listing of all relevant documents.
- A listing of all people, places, and things found in relevant information.

#### **11.3.5. Assignment of Meaning**

From the written material you created while assigning meaning, provide the following information:

- A listing of all the people, places and things that are directly or indirectly linked to the people, places, and things found in relevant information.
- For each person on the above list, provide the following information:
  - A bibliographic listing of all documents containing mention of the person.
  - A listing of all persons with whom the individual has been associated and the time period of the association.
  - A listing of all groups or organizations with whom the individual has been associated and the time period of the association.
  - The specialties and substantive activities of the person as a function of time.
  - Your belief/judgment as to what motivates this person and his or her actions and the basis for your belief/judgment.
- For each place (organization/group) on the above list, provide the following information:
  - A bibliographic listing of all the documents containing mention of the place.
  - A listing of all persons that have been associated with the place and the time period of the association.
  - The specialties and substantive activities associated with the place as a function of time.
  - Your belief/judgment as to what motivates the activities or behavior associated with the place and the basis for your belief/judgment.
- For each thing on the above list, provide the following information:
  - A bibliographic listing of all documents containing mention of the thing.
  - A listing of all persons and places that have been associated with the thing and the time period of the association.
  - The place where the thing was developed or produced as a function of time.
  - The people who designed/developed the thing and the time in which the design or development was accomplished.
  - All uses made of the thing.
  - Your belief/judgment as to what motivates the use of the thing and the basis for your belief/judgment.
- For each document containing relevant information, provide the following:
  - A brief summary of the substantive content of document.

- A comparison of how the content of this document differs from earlier documents that dealt with the same substantive topic.
- Anything new or different in the substantive content.
- The relationship between the document content and the intelligence issue.
- Your belief/judgment on the contribution of the document's content to the understanding of the topic or capability and the basis for your belief/judgment.
- A listing of the previously determined motivation of each person, place or thing associated with the information.
- Your belief/judgment on the meaning of the information and the basis for your belief/judgment.

#### **11.3.6. Assessment**

From the written material you did during your assessment, provide the following information:

- A listing of the meaning of each piece of relevant information sorted by the date associated with the information.
- Listings sorted by content, places, or persons developed from the commonality of the meaning of each piece of relevant information considered.
- A listing of beliefs/judgments provided from other areas of analytical responsibility.
- A listing of intermediate beliefs/judgments and their basis.
- A listing of final beliefs/judgment(s) and their basis.
- A chronological listing of known events and activities that relate to the intelligence issue.
- A description of any predictions made and the basis for the predictions.
- A description of your uncertainties for both the final judgment and any predictions.
- The rationale associated with each of your uncertainties associated with the final judgment and any predictions.

#### **11.4 Changing from Writer to Critic**

When you've accomplished all of the above, your role changes from that of a writer to that of a critic. The overall FAC approaches are based on work from the "bottom up." However, in your role as a critic, you want to work from the "top down." You can start with either the predictions made or the final belief(s) and ask yourself *why*. Each answer to a why question must also be subjected to a why question until there are no more questions to be answered.

Your objectives in such intense questioning of yourself are twofold: to discover any flaws in your bottom up analysis and belief formulation and to identify the beliefs that are best supported by evidence and have the greatest contribution to supporting other beliefs. In effect, you are marshalling your arguments for what you believe.

You will find this marshalling to be extremely useful in the preparation of the customer product. Your preparation of the customer product is the last step in the FAC and fulfills the ultimate objective of addressing the intelligence issue and providing your assessment to customers that need the information.

### **11.5 Summary**

The totality of the written material that you have prepared in this section is the analysis representation. Writing out, in a thorough and coherent manner, what you did throughout the analysis provides a sound foundation for preparing product(s) for your customer(s). This final step in the FAC is described in the next section.

## 12.0 CUSTOMER PRODUCT

*“A final consequence of the lack of realization of the impact of beliefs....is that actors often fail to maximize their ability to communicate...what matters in sending a message is not how you would understand it, but how others will understand it....To put oneself in another’s skin is terribly hard.”<sup>190</sup>*

### 12.1 The Last Cognitive Challenge

In earlier sections of the FAC we described how you can conquer the cognitive challenges you encounter during intelligence analysis. This section describes how to address the final cognitive challenge in your analysis journey: communicating your assessment to a customer or audience.

As we described in the FAC section on intelligence issues, you got started on your analysis in one of three ways: you were assigned a new AOR (*AOR issue*); a question or issue was initiated by you (*self-initiated issue*); or someone else initiated a question for you to address (*external issue*). The FAC led you through the process of understanding that issue more thoroughly, planning for analysis and information retrieval, gathering information, assessing information, and formulating your assessment on the intelligence issue. For AOR issues, the FAC was used to understand the scope of your responsibilities, identify the topics or functional areas associated with your AOR, and develop a plan to acquire information on those topics or functional areas. As you do analysis within your AOR, you identify self-initiated issues or others will generate external issues that require a customer product. This section applies to self-initiated and external issues. For self-initiated and external issues, it is now time to share your analysis with those that can use it to do their missions.

Intelligence analysts are expected to communicate their assessments in a wide variety of formats using a variety of presentation methods. No matter what communication method or medium you use, you can use the work that you have done throughout the FAC to prepare products to communicate to various audiences. The purpose of this section is to aid you in developing an effective communication of your assessment. The section focuses on developing a written communication or product because cognitively the written product will be the most challenging product. The writing you do can then serve as an excellent foundation for adapting the written product to other forms of communication, such as briefings and discussion sessions.

*Who is an audience?*

As we described in the FAC section on intelligence issues, you have various customers or audiences. If it is an external issue, the primary audience is the individual or organization that initiated the issue. For other types of issues, as we have described in other FAC sections, your audience will be prospective customers that you think can use the assessment you have done. These may include individuals within or outside of intelligence organizations (including your own), as well as organizational audiences both within the intelligence community and external to it. These audiences include other analysts or managers, as well as an individuals or organizations that will use your assessment for decision making and action to fulfill their missions.

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<sup>190</sup> Jervis, R. *Perception and Misperception in International Politics*, Princeton University Press, Princeton, NJ, 1976. p. 187.



*Why do you regard communicating the results of intelligence analysis to an audience or customers as a cognitive challenge?*

In the FAC, we have emphasized that information does not have a single meaning. For the customer product, the recipient that will determine meaning is your audience. Just as we discussed the role of your mindware in determining meaning, for the customer product it is the audience's mindware that will be used to determine the meaning of what you provide. As you recall, this mindware includes both content (facts, data, information) and the audience's knowledge/beliefs and goals. Your purpose and goals in addressing the intelligence issue were instrumental in your determination of meaning. Similarly, the audience's purpose will govern their determination of meaning.

As we have discussed in the "Assignment of Meaning" section, as an intelligence analyst, you are focused on determining the originator's (i.e., your target's) meaning. For your assessment, you are the originator of the information to be communicated to the audience. As we pointed out, focusing on the originator's meaning is unique to intelligence analysis. Instead, your audience will be primarily focused on what the information means to them and how they can potentially use it, i.e., how does it help them do the mission that they have to do. Consequently, your challenge is to achieve shared meaning with the audience. You have formed your beliefs about the target and now you want to establish a set of shared beliefs about that target with your audience. Because you and the audience have different mindware, it will be a major cognitive challenge for you to determine what is necessary to attain shared meaning and beliefs with your audience.

We've said that the purpose of this section is to aid you in developing an effective communication of your assessment. Stated differently, the purpose is to aid you in attaining a shared meaning of your assessment with your audience. If you are entirely successful, after reading your product you and the customer will share the beliefs that you formed about the target; the customer will use those beliefs to accomplish their mission.

All of the work you do to create the customer product must be oriented to the needs and role of the audience. This can present a challenge because you are writing for an audience whose environment, relationship to the subject of the intelligence issue, and relationship to you must all be taken into consideration as you write. In addition, your mindware most likely represents more facts, details, context, and considerations than the customer needs to know. Incorporating all of these perspectives into your writing of the customer product will require a change of perspective on your part. Developing a more complete understanding of your audience's perspective and keeping that understanding at the forefront of your thinking while you create the product is an ongoing cognitive challenge.

## **12.2 What We Don't Cover in This Section**

We'd like to mention some topics that won't be discussed in this section of the FAC: format, style, grammar, organizational and intelligence community requirements and standards for products, and organizational review processes. We suggest that you familiarize yourself with your organization's policies and requirements for document layout and content so that you can produce a document that meets your organization's requirements. You should also seek information within your organization about standards, including those of your organization and the intelligence community. In addition, you should also be familiar with your organization's product review process.

While we won't cover reviews in this FAC section, an important point to keep in mind was addressed in the "Analysts as Individuals" and "Knowing Yourself," section: instinctively we may not readily accept critical comments on our efforts. However, research suggests that we shouldn't immediately reject comments since we may be rejecting a learning experience. Others may have more extensive contacts and expertise, as well as a fresh perspective.

As for style and grammar, a multitude of books and online tools exist which cover these two topics, some of which are specifically oriented to intelligence analysis<sup>191</sup>. In this section of the FAC, we assume that you have a working knowledge of the basics of style, grammar, and composition. If you struggle with writing, or would like to improve your writing skills, we suggest that you investigate the many resources available through your organization, local college or university, or library.

### **12.3 How Will I Use the Analysis Representation to Prepare a Customer Product?**

You wrote your analysis representation for your own use; you were both the author and the customer. The analysis representation was not constrained by size, format or style. The focus was to include the totality of what you did in the entire analysis process and write it out in a coherent manner. It helped you pull together all of the written materials you prepared during each step of the FAC. While preparing the analysis representation, you may have also written more information to fully capture your thinking throughout the analysis process.

To do the customer product, you'll use the written material you updated and wrote for the analysis representation section. For example, the issue statement and customer and target view guides will help you analyze your audience for the customer product. For the content of your customer product, you will rely on the writing you did for the assessment section. However, you will need to reframe your assessment to communicate it based on the analysis of your audience's needs that you will do as part of this section. That reframing will most likely involve revising the writing that you've already done. In the customer product, you will also use the information about the uncertainty associated with your assessment; you will need to make decisions about what and how to communicate that uncertainty to the customer. Unlike the analysis representation, you will have constraints on size, format, and style for the customer product that will also influence the manner in which you reframe your assessment for the audience.

### **12.4 Audience Analysis: Determining What the Customer Needs**

Before you begin creating the customer product you must undertake a critical activity: an audience analysis. This analysis involves understanding both the implied and expressed characteristics of the audience for the product you are about to create. You must understand both the implied and expressed characteristics of the audience to write an effective customer product. Earlier sections of the FAC explored the characteristics of the customer and what they needed to know, but a fuller understanding of the customer will assist you in creating a more effective product.

*What should I consider about implied characteristics?*

Implied characteristics are those which are likely to be part of the culture of your intelligence organization and its overall understanding of its customers. These characteristics may be

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<sup>191</sup> For example, Major, J. S. *Writing Classified and Unclassified Papers for National Security*. Scarecrow Press, Lanham, MD, 2009.

unexpressed but widely accepted. For example, consider the intelligence analysis literature and how it describes some customers. The intelligence literature often characterizes intelligence customers in the following ways:

- The customer uses the results of intelligence analysis to make decisions, direct military operations, or develop policy.
- The customer may know, or believes he or she knows, more about a topic than the intelligence analyst.
- The customer is only interested in the bottom line.
- The customer may or may not read the detailed argument you develop to justify your conclusions.
- Some customers are interested in details; other customers only care about the big picture of the issue.
- The customer is operating under a set of pressures or deadlines that are different than those of intelligence analysts.

These characterizations reflect beliefs about the nature of the audience for the customer product.

Characterizations of the customer, however, may not always be accurate. In order for you to create an effective customer product, you need to consider whether or not the characterizations are true for your audience. If not, what are some of the ways that your organization views its customers? Is your audience other intelligence analysts rather than decision makers? You should think carefully about broad organizational assumptions about the needs of the customer or audience before you write the customer product.

*What expressed characteristics should I consider?*

In addition to these implied general characterizations, your audience has some more specific and unique qualities as well. These are expressed characteristics of the customer, some of which you captured earlier in the FAC when you initially wrote the intelligence issue and then updated it in the analysis representation. The Customer View Guide helped you understand as much as possible about why a customer was asking the intelligence question and how he or she planned to use your assessment (i.e., the customer's purpose, roles, and missions). For self-initiated issues, you explored how prospective customers would use your assessment. The Target View Guide also helped you understand what the actual or prospective customers need to know about the target. The understanding you achieved from doing these two guides was then incorporated into the Intelligence Issue Statement. These three documents contain very useful information for your audience analysis. Your understanding of the specific needs of an actual or prospective customer has driven all of your activities in the FAC and must be part of your framing and writing of the customer product.

In addition, the "Assignment of Meaning" section described three concepts that are essential for analyzing your target: *meaning*, *habits*, and *structure*. From a different perspective, these concepts are also useful for analyzing your audience. Earlier in this section, we described the cognitive challenge associated with sharing your *meaning* with the recipient of the assessment (your audience) since they have different mindware. The second two concepts, habits and structure, are also useful in analyzing your audience.

Recall that it is important to understand a person's *habits* and the context in which they occur. It is also important to be aware when that context has changed and to identify what is unknown about the context. Similarly, analyzing the habits and context of your audience can provide useful insights for your framing of the customer product. Your audience also operates within a *structure* and all decisions and actions take place within that structure. Analyzing that structure can provide additional understanding that will help you effectively communicate to the audience.

By coupling your understanding of the audience's mindware, habits, and structure from prior FAC work with additional audience analysis, you can gain additional insights about the customer. This will aid you in focusing on your purpose in this section: using your understanding of the audience to frame and communicate your assessment. You will likely find that you need to analyze other factors to better understand your audience's purpose and characteristics. These factors include:

- The environment of the audience
- The subject of the intelligence issue as interpreted by the audience
- The relationship of the audience and the writer<sup>192</sup>

Some additional questions to better understand these three factors include:

- What is the audience's experience and educational background?
- How much does the audience know about the overall subject, about the specific issue, about what I intend to say? How strong are the audience's beliefs about the subject and the issue?
- Has the audience acted on those beliefs before? Why does the audience act/react the way they do?
- Why does the audience have these beliefs? Does the audience have beliefs which are different than those you hold about the subject or issue?
- What is the history of the audience with this or similar issues? Is this a new issue for the audience?
- Has the audience provided input or feedback before on this or similar issues? What was the nature of it?
- What is the history of the audience with my organization? With the intelligence community?
- What is the audience's knowledge and attitude about my organization? About those within my organization that have had contact with the audience?
- Do I or those in my organization share experiences, attitudes, subject matter interests with the audience? What interests are shared, what are different? Do we have a shared purpose?
- Given the audience's characteristics, is this an appropriate audience for this subject? If so, what framing, supporting argument presentation, and tone will likely be effective in sharing meaning?

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<sup>192</sup> Factors and questions adapted from Pfister, F.R. & Petrick, J.F. "A Heuristic Model for Creating a Writer's Audience," *College Composition and Communication*, Vol. 31, No. 2, 1980, p. 214.

As you go through these questions, you will undoubtedly think of other questions associated with your audience. The result of your audience analysis should be a vision of the person or organization that you are communicating with before you begin writing. We recommend you capture your audience analysis in writing (in a form of your choice, e.g., a description or a list of characteristics) in preparation for the next step in creating the customer product.

*The results of my intelligence analysis work are to be used by an organization, not a specific person. How does your advice apply to me?*

Organizations have implied and expressed characteristics just like those of individuals. When we talk about the audience, we mean either an individual or an organization. You can apply the audience analysis methods we describe to both organizations and individuals alike.

## **12.5 Getting Ready to Write**

Once you have completed your audience analysis, you must carefully consider what you plan to include in the customer product. Given your audience analysis, what content will be necessary to both inform the audience and persuade that audience to share your beliefs about the target? You must decide what broad topical categories to include, but that is not sufficient. In addition, you must decide what specific, focused topics to include and how to construct them with precise, clear language. If your product contains too little information of substantive value, or if your judgments are not adequately supported, the customer is likely to dismiss your judgments. If your product contains too much information, the customer may get frustrated at your lack of focus and dismiss the judgments that you are trying to convey. Neither of these outcomes is desirable.

If you are having difficulty determining what to include in the customer product, it may be helpful to consider again what your purpose is in creating this communication to the customer. What is your reason for creating a customer product? How do you want the audience to respond? What decisions and actions does your analysis support? A review of your thinking about these questions and your audience analysis should help you select and reframe the appropriate information about your assessment for the product.

## **12.6 Components of the Customer Product**

The two major components of the customer product are:

- A concise assessment of the intelligence issue
- A narrative of the assessment of the intelligence issue

We'll describe each of these components in more detail in the following.

### **12.6.1. Concise Assessment**

If you happened to bump into the customer and he or she asked you what you thought about the intelligence issue, you wouldn't spend an hour explaining what you have concluded. You would be more likely to answer the customer's question in a few sentences which would summarize your assessment.

The concise assessment we suggest you write is similar to what you would say in a brief encounter with the customer: it is a summary of your judgments. The concise assessment might also include a few words that describe key evidence and uncertainties about your judgments. The concise assessment, however, does not include the argument or chain of reasoning that supports

your judgments. Besides being brief and to the point, you must frame the concise assessment for your audience based on your audience analysis.

We recommend that you begin writing the product by drafting the concise assessment. What are the major points you want to convey to the audience? This will help focus your thinking about how to frame the longer narrative assessment. After you've drafted and reviewed the narrative assessment, you'll want to revisit and adjust your concise assessment. You'll likely find that you'll iterate several times between the two to refine your message for the audience.

*Why is the concise assessment important?*

An effective customer product informs and persuades the audience. In order to be persuasive, every element of the customer product you create must relate to the main idea you are trying to communicate. If you can't identify the main idea contained in your assessment of the intelligence issue and write it in a way that the customer can understand it, you cannot convey your supporting evidence and associated argument in a way that convinces the customer to share your beliefs about the target. Your narrative assessment will lack focus and you will fail to inform and persuade the audience.

Also, it may be difficult for you to change your perspective on the intelligence issue from your own point of view to the point of view of the audience. Writing the concise assessment is a good first step in conquering the cognitive challenge of writing for the audience rather than writing for your own use.

Finally, it is quite common in customer products to offer the bottom line of the analysis first in the document or presentation. The audience wants to know whether to read (or listen to) your product or skip it. The concise assessment plays an important role in capturing the audience's attention and setting the stage for a more detailed discussion of the intelligence issue in the assessment narrative.

### **12.6.2. Assessment Narrative**

Writing your assessment out as a story specifically reframed for your audience's perspective is essential to attain shared meaning of your judgments. That story is the assessment narrative.

*What elements does the assessment narrative include?*

The most important thing to remember about the narrative is that everything you include in it must contribute to your purpose: sharing the meaning of your assessment with the audience. Your narrative will include various elements. You'll need to provide your judgments and the necessary support for those judgments so that the audience will adopt the beliefs you have formed about the intelligence issue. The narrative also includes aspects of your argument or chain of reasoning. Arguments consist of evidence, hypotheses, and statements that justify linkages between evidence and hypotheses. Your argument is your chain of reasoning from evidence to hypotheses.<sup>193</sup> It includes the assumptions you made in your analysis, as well as judgments of others that you relied upon for your assessment in the narrative. You developed your assumptions, evidence, and tentative hypotheses during your analysis in the Assignment of Meaning and Assessment sections. Your analysis resulted in beliefs at various stages (i.e., beginning and intermediate beliefs) and ultimately the overall belief that forms the basis for the

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<sup>193</sup>Anderson, T., Schum, D.A. & Twining, W.L. *Analysis of Evidence*, 2nd edn, Cambridge University Press, Cambridge, UK, 2005, p 60.

judgments and conclusions that are your assessment. The narrative organizes your assessment into a coherent story that is logically supported by the evidence,<sup>194</sup> presented as a meaningful whole or totality.<sup>195</sup>

The narrative includes an explanation of the current status of the target and your prediction about the future state of the target's activities, developments, and intent. To convey your assessment, your narrative includes selected descriptions of people, places, things, decisions, actions, and time frames associated with the target, as situated in the target's environment. It is also necessary to include appropriate background and context for the information you choose to include in your narrative. Based on your audience analysis, all of these elements must be framed relative to the interests and beliefs of your audience.

*What should I consider including for various elements of the narrative?*

What you include relative to the narrative elements described in the preceding depends on many factors in addition to the interests and purpose of your audience; for example, the subject matter associated with the intelligence issue, your purpose, and the nature of your evidence and judgments. Consequently, we can't advise you as to exactly what you should include or precisely how to organize your narrative. The following descriptions, however, provide recommendations about what you should consider relative to selected narrative elements. Appendix 1 also contains questions to aid you in your review of your completed narrative. Keep in mind that the elements of the narrative will be interwoven to tell your story; your writing will not be segmented by element.

- **Beliefs:** In the Assessment section, you developed your overall belief(s). Your analysis may have resulted in a single belief or multiple beliefs about the target based on what was best supported by the evidence. If your analysis resulted in multiple beliefs, it is appropriate to convey that to your audience. How you communicate multiple beliefs, often referred to as alternative hypotheses in the intelligence literature, depends on how the audience may use the information you provide, as well as the strength of each of those beliefs based on the evidence. The audience, however, may want a "single answer". In this case you should provide your strongest belief, with associated uncertainties, as your assessment or "best answer" to the customer. If you think that the customer needs to know about other possible outcomes given how they could use your assessment, you should also provide those even if a customer hasn't asked for them or wants just a "single answer."
- **Evidence:** Your beliefs rest on the evidence that you acquired. All of the significant evidence that provides the foundation for your beliefs and resulting assessment should be accounted for in your narrative.<sup>196</sup> Evidence is significant if it was instrumental in forming the beliefs that resulted in your final assessment. You should also include any evidence of consequence which does not support your assessment. It is also essential that your narrative address questions about the

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<sup>194</sup> Anderson p. 152.

<sup>195</sup> Anderson, p. 155.

<sup>196</sup> Schum, D.A. *Narratives in Intelligence Analysis: Necessary but often Dangerous*, George Mason University, Fairfax, VA, 2005, p.8.

credibility, relevance and force of the evidence you present,<sup>197</sup> including any assumptions or speculations you've made to fill in gaps in the narrative left by evidence you don't have.<sup>198</sup> The strength of your conclusion depends on how many recognized questions remain that are unanswered by the evidence presently available. Consequently, it is important to recognize the completeness of your evidence.<sup>199</sup> Given your assessment, you should also discuss what evidence you expected to see but do not. It may be appropriate to explain why you think this is the case (e.g., not collectable because of lack of coverage or the nature of the evidence). All evidence must be appropriately sourced.

- **Assumptions:** Keep in mind the FAC definition of assumptions--statements or descriptions that are treated as if they are true without the necessity of proving them true. Assumptions are often used to establish boundary conditions for subsequent analysis. The judgments and assessments of other analysts used in your assessment are not assumptions unless they are used to establish boundary conditions in a "what if" analysis. The substantive areas you identified in your analysis plan reflect your assumptions about the intelligence issue when you started your analysis. These substantive areas were used to determine the judgments you needed from others for topics outside your AOR. If you were unable to obtain the needed judgments from others, you had to establish your own boundary conditions for these topics. It is important to tell the audience about those boundary conditions. In addition, if those boundary conditions were critical to your argument, it introduces significant uncertainty about your assessment. This uncertainty must be conveyed to the audience in a way that is relevant to their decisions and actions. Clearly identify the boundary conditions or assumptions used in your assessment and articulate how critical they are to key elements of your argument. Be precise about describing the boundary conditions or assumptions you established and differentiating them from the judgments of others.
- **Judgments of others:** The judgments and assessments of other analysts used in your assessment should be clearly presented as other's judgments, not assumptions unless they are used to establish boundary conditions in a "what if" analysis. Source appropriately.
- **Target's Environment and Context:** As we've said repeatedly, the meaning of information depends on the context; each individual provides the context. Your target's decision and actions take place within their environment, and their thinking is affected by the individual context that they bring to a situation. As you convey your assessment about the target, you must also convey selected information about the target's environment and context to aid your audience in understanding the target. Consider including in your product aspects about the target's context that influenced your beliefs about the originator's (i.e., the target's) meaning of information. In the FAC we've often discussed that the context is dynamic. Your audience needs to understand the changing context associated with the target's current situation. Understanding how dynamic the situation is provides the audience

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<sup>197</sup> Schum p. 15.

<sup>198</sup> Schum p. 5.

<sup>199</sup> Schum pp. 18-19.



perspective on how things are changing and how fast. As Schum says, "...discovery and inference in intelligence analysis and elsewhere take place in a non-stationary world. The world changes as we are attempting to explain what is going on in it."<sup>200</sup> The same is true for your audience's decision making and planning, i.e., the world changes as they are preparing to make decisions and take actions. Consequently, conveying information relevant to the audience about the changing context is essential.

- **Uncertainties:** Ensure you address uncertainties that are important from the audience's perspective, given what they may do with your assessment. Think about the audience's purpose and the potential decisions or actions they may take. Consider which uncertainties are essential to convey from this perspective. These uncertainties may include those about your sources, evidence, beliefs about the current status of the target, and your predictions. Be clear about the type of uncertainty you are discussing (e.g., differentiate uncertainty about the reliability of a source from uncertainty due to missing evidence from uncertainty about a judgment, etc.)

#### *How should I organize the narrative?*

There is no prescribed order or formula for organizing narratives that is effective for all products. Present your narrative in a logical sequence. That logical sequence should be the best explanatory account of the situation. It may or may not be in temporal order.<sup>201</sup> Keep in mind the elements of the narrative must be interwoven as appropriate based on many factors, including your audience's purpose, your purpose, and the subject matter. Some possible approaches include:

- judgments that reflect your beliefs followed by evidence (the most supporting first), followed by contextual information;
- most important judgments that reflect your beliefs, followed by judgments of secondary importance, along with relevant evidence-based speculations and interpretations;
- most important judgments that reflect your beliefs with evidence, secondary judgments, and context information.

#### *Why is the narrative assessment important?*

The elements of the narrative assessment, framed for the audience's perspective, substantiate your concise assessment. By providing your knowledge on each of the elements of the narrative assessment, you enable the audience to understand what you now believe about the target. In addition, the supporting evidence and chain of reasoning that you provide will persuade the audience to share those beliefs. By telling a clear, effective story that conveys the uncertainties associated with your assessment, the audience can evaluate the potential risks of decisions and actions taken based on your assessment. The narrative also provides sufficient knowledge for the audience to understand the people, places, and things that are relevant to their interests, decision making, and actions. Consequently, it provides the foundation of knowledge for the audience to

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<sup>200</sup> Schum pp. 18-19.

<sup>201</sup> Schum p. 29.

formulate options for decision making and action that are needed to fulfill the audience's mission and purpose.

## 12.7 Other Hints for Effective Customer Products

The audience most likely does not need to know everything you know. If you carefully conveyed your concise and narrative assessments, guarantee that every word you include in the customer product contributes to your purpose of sharing meaning about the target with your audience. This results in an organized and focused communication that the customer can use to make decisions or take other actions, fully understanding relevant uncertainties. Precision when writing all the elements of the narrative is essential. It will also help you not turn a short story into a long story.<sup>202</sup>

Don't over argue. As S. D. Stark counsels attorneys writing legal arguments, "every point does not have to be the essential point, and every contention is not of equal value."<sup>203</sup> One indicator that you've over-argued in your narrative may be that you've made a short story into a long story. Not all points you made in your analysis representation should be included in the customer product. Focus on the compelling points given your audience's purpose and interests. Write to cover potential questions that you anticipated based on your knowledge of the customer, their purpose, and beliefs.

It may be important for your audience to know some information about the standpoint from which you approached the analysis. For example, you may want to share with your audience where you are in your overall understanding of the target since your analysis is time and context dependent and that nature of your arguments may change during various stages of analysis and in light of new information received. Over time, your purpose and objectives for doing the analysis may have changed as well. You should consider if such a change in purpose is relevant for the customer to know. It may also be useful for your audience to know if your analysis was time constrained in such a way that impacted your analysis relative to the customer's interests.<sup>204</sup>

According to Schum, the "...literature suggests that stories are wonderful vehicles for "cheating" in the process of persuasion..."<sup>205</sup> Be cognizant that you may be inclined, for various reasons, to temper or adjust your assessment if you think that it will not be well received by the audience. The influences to do so, both self-generated and generated by others can often be quite subtle. For instance, you may be uncomfortable delivering an assessment that contradicts a high level customer's beliefs and/or policies. It can be tempting to tell a short story that is a good story, but not one well supported by the evidence. This is why Schum refers to narratives as "necessary but dangerous."<sup>206</sup> Carefully compare your draft narrative to the assessment you wrote for the analysis representation to ensure that you have not modified the essential content of the assessment based on what you now understand about the customer.

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<sup>202</sup> Schum p. 29.

<sup>203</sup> Stark, S.D. *Writing to Win: The Legal Writer: The Complete Guide to Writing Strategies that Will make Your Case-- and Win it*, Broadway Books, New York, NY, 2000, p. 73.

<sup>204</sup> Schum pp. 18-19.

<sup>205</sup> Anderson p. 262.

<sup>206</sup> Schum p. 29.

## HINT FOR COLLABORATIVE PRODUCTS

Stark has a rule for writing persuasive documents for legal cases that is particularly applicable to writing collaborative intelligence analysis products. “Don’t divide the drafting of a document among many writers.” [Stark, *Writing to Win*, page 14-15] Stark’s discusses that many writers produce a draft with no one style. He says that if there are multiple writers they must have worked together for years and have compatible styles.

We recommend Stark’s rule be applied to improve your narrative in an additional way. Multiple writers can also have a negative impact on the substantive content and persuasive impact of your message. Your message must be coherent, logically consistent, and presented as a meaningful totality or whole. In practice, during analysis there are various activities working with other analysts referred to as collaboration. Similarly, there are different activities referred to as collaboration that take place during product writing, ranging from cutting and pasting others’ inputs to fully and jointly writing the product. From a cognitive perspective, substantive coherency and construction of an effective, persuasive message focused on your audience’s needs is best attained if you have one or few writers as described in the following. You want to achieve the state where you collaborate so closely that sometimes you lose track of who has written which part of the text.

*“In every sense of the word the book is coauthored. We taught together, class by class, and have written together, chapter by chapter. It has been a long process. We each wrote half the chapters in our first draft, then swapped them for redrafting with the rule that anything could be changed. Almost everything was. We had a further rule that any changes could be argued. Some were, some not. We carried on the argument by means of successive drafts, with new material subject to the same rules. There were so many swaps that each of us would change something only to be surprised by the other’s “OK with me, you wrote it.” We debated sources and argued out interpretations. Not only can we no longer remember who first wrote what, we cannot now remember who first thought what—or even who first found what when we jointly researched something. We are of one mind and (we hope) one voice.” [Thinking in Time, Richard Neustadt and Ernest May.]*

Achieving this state is not always possible or practical. If it isn’t, we recommend that one analyst draft the narrative assessment, followed by extensive review and discussion with collaborative analysts.

### 12.8 Critiquing Your Draft

Now that you’ve drafted the narrative assessment, you should go back and review your draft concise assessment. Check to see that the major points of your message are adequately supported by your narrative. If they aren’t, make the necessary adjustments to the narrative assessment. You may also find that you need to adjust the language in your draft concise assessment so that it is better focused, based on the audience’s interests and the elements contained in your narrative.

When you think you are satisfied with both the concise assessment and the narrative, and the relationship between the two, there's one last step. Review your customer product one last time, using the questions in Appendix 1. If necessary, make adjustments to the product.

## 12.9 Summary

This section provides information to address the final cognitive challenge: communicating your assessment to a customer or audience. This audience can be internal or external to the intelligence community, an individual or an organization, or an actual or prospective customer. To communicate effectively with your audience means, you must be able to share the meaning of your assessment with your audience. This requires that you do additional analysis of your audience.

To develop your customer product, you will rely extensively on the writing in your analysis representation, which represents all your prior work in the FAC on the intelligence issue. The customer product has two major components: the concise assessment and the narrative assessment. Both must be framed in terms of your audience's characteristics and needs. Recommendations and hints are provided to aid you in writing an effective narrative. If you are entirely successful in sharing your meaning with your audience, your audience will share the beliefs that you formed about the target and use those beliefs to accomplish their mission.

*When you wish to instruct, be brief; that men's minds take in quickly what you say, learn its lesson, and retain it faithfully. Every word that is unnecessary only pours over the side of a brimming mind.*

*-Cicero*

## 12.10 Supplement 1: Questions for Critiquing Your Narrative<sup>207</sup>

- Is your story coherent? Is it presented as a meaningful totality or whole?
- Is the story fully articulated?
- Is the story internally consistent?
- If you were unable to arrive a single overall belief for your assessment, have you communicated that to your audience? Given how the audience may use the assessment you provide, have you communicated what is important for them to know about your multiple beliefs and the strength of those beliefs?
- Have you included all of the significant evidence that provides the foundation for your beliefs and resulting assessment? Have you included any evidence of consequence which does not support your assessment? Is the evidence appropriately sourced?
- Is there any evidence that seems to conflict with the story? Have you described that evidence and the implications from the customer's perspective?
- Are there any elements in the story not supported by the evidence? To what extent are they based on speculation? Is your speculation evidence-based? Have you clearly articulated where you've gone beyond the evidence?

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<sup>207</sup> Questions adapted from Schum, D.A. *Narratives in Intelligence Analysis: Necessary but often Dangerous*, George Mason University, Fairfax, VA, 2005, pp. 8-25 and Anderson, T., Schum, D.A. & Twining, W.L. *Analysis of Evidence*, 2nd edn, Cambridge University Press, Cambridge, UK, 2005, pp. 281-282.

- Have you summarized the extent to which the evidence supports the narrative?
- Does the story sneak in expressly or by innuendo any irrelevant evidence?
- If you do not have complete evidence relative to the situation of interest, have you filled in gaps? Have you clearly articulated where that is the case?
- Insofar as the story goes beyond the evidence, is it supported by plausible assumptions?
- Have you clearly identified those assumptions? (Keep in mind the FAC definition of assumptions)
- If your audience already has their own story about the issue which is different from yours, have you thought about what evidence would be necessary to support the audience's story? Have you clearly identified whether you have that evidence or not?
- Have you adequately addressed audience questions that you can anticipate given the differences in the audience's mindware and yours relative to the intelligence issue?
- Based on your audience analysis, does your story address questions that you anticipate the audience may ask about the credibility, relevance, and force of your evidence? Does your story address and properly convey how your assumptions and the judgments of others were used in the assessment?
- Have you declared important contextual and time-related elements that have implications for your analysis? For example, your analysis is time and context dependent and the nature of your arguments may change during various stages of analysis and in light of new information received.
- If your purpose for the analysis changed during the course of your analysis, have you considered if that change in purpose is relevant for the audience to know about? If it is, have you articulated that in your narrative?
- Have you appropriately addressed the sources of evidence queried? Is evidence sourced?
- Do you have unanswered questions given the evidence presently available? Have you communicated that no evidence was available from all the sources you queried to answer some of your questions about the target?
- If the time to do your analysis was time constrained and the effects on those time constraints impacted your analysis, have you communicated that to the customer?
- Have you presented your narrative in a logical sequence? That logical sequence should be the best explanatory account of the situation. It may or may not be a chronology.
- Have you conveyed your story so the dynamic nature of the situation is captured? You and the audience are trying to make sense out of a world that keeps changing. Has that been adequately conveyed?
- Is the story longer than it needs to be? Have you made a long story out of a short story? Is this because you've over argued your story?

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## **LIST OF SYMBOLS, ABBREVIATIONS, AND ACRONYMS**

|        |                                                   |
|--------|---------------------------------------------------|
| AAWE   | American Association of Wing Economists           |
| ACH    | Analysis of Competing Hypotheses                  |
| AFIAA  | Air Force Intelligence Analysis Agency            |
| AFRL   | Air Force Research Laboratory                     |
| AOR    | Area of Responsibility                            |
| CBA    | Cost Benefit Analysis                             |
| CIA    | Central Intelligence Agency                       |
| CINC   | Commander in Chief                                |
| COMINT | Communication Intelligence                        |
| DIA    | Defense Intelligence Agency                       |
| DNI    | Director of National Intelligence Agency          |
| ELINT  | Electronic Intelligence                           |
| FAC    | Framework for Analytic Cognition                  |
| FISINT | Foreign Instrumentation Signal Intelligence       |
| GEOINT | Geospatial Intelligence                           |
| GIS    | Geographic Information Systems                    |
| HUMINT | Human Intelligence                                |
| ICR    | Intelligence Collection Requirement               |
| IMINT  | Imagery Intelligence                              |
| IQ     | Intelligence Quotient                             |
| IS&R   | Information Storage and Retrieval System          |
| ISAR   | Interferometric Synthetic Aperture Radar          |
| JMIC   | Joint Military Intelligence College               |
| LIDAR  | Light Detection and Ranging                       |
| MASINT | Measurement and Signature Intelligence            |
| MSI    | Multispectral Imagery                             |
| MTI    | Moving Target Indicator                           |
| NGO    | Non Governmental Organization                     |
| OSINT  | Open Source Intelligence                          |
| REM    | Rapid Eye Movement                                |
| SAT    | Structured Analytic Techniques                    |
| SECDEF | Secretary of Defense                              |
| SIGINT | Signal Intelligence                               |
| SWOT   | Strengths, Weaknesses, Opportunities, and Threats |
| TS/SCI | Top Secret/Sensitive Compartmented Information    |
| U.S.   | United States                                     |